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ABSTRACT

This task analysis guide is intended to help teachers and administrators develop instructional materials and implement competency-based education in the agricultural production program. Section 1 contains a validated task inventory for the livestock production portion of agricultural production IV and V. Tasks are divided into six duty areas: performing general livestock duties and raising beef cattle, dairy cattle, swine, horses, and sheep. For each task, applicable information pertaining to performance and enabling objectives, criterion-referenced measures, and suggested instructional activities and aids are provided. In this section, tasks are arranged by worker duty area only, and the suggested task sequence list from Section 2 (as adapted by the local system) should be used to establish teaching order of the tasks. Section 2 provides descriptions of the agricultural production program and second- and third-year courses and suggests a task sequence listing and an outline for livestock production. The instructional topics within the course content outlines have been cross-referenced with corresponding task/competency codes from the task inventory in Section 1. A bibliography is followed by a listing of additional information and resources. (YLB)

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AGRICULTURAL PRODUCTION:

TASK ANALYSES FOR LIVESTOCK PRODUCTION

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RICHMOND, VIRGINIA 23216

1985

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AGRICULTURAL PRODUCTION:

TASK ANALYSES FOR LIVESTOCK PRODUCTION

Developed by

Virginia Vocational Curriculum Center
Henrico County Public Schools
Department of Vocational and Community Education
Glen Allen, Virginia 23060

and

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In Cooperation with

Agricultural Education Service
Virginia Department of Education
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FOREWORD

In the next decade businesses and industries in Virginia will require large numbers of skilled workers. Therefore, vocational education at the secondary and postsecondary levels will have the responsibility of preparing individuals for a variety of occupations.

Through competency-based education (CBE) students will gain the preparation necessary for their entry into the work force in Virginia. Also, CBE will enhance articulation of students between vocational programs and levels of education. Finally, CBE can help retain workers who have been displaced in the work force because of changing technology.

This guide will serve to assist teachers and administrators in developing instructional materials which meet the needs of students and industry and comply also with the Virginia CBE standards for vocational and adult education.

S. John Davis
Superintendent of Public Instruction

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This task analyses guide was developed by the Virginia Vocational Curriculum Center, administered by the Henrico County Public Schools, Department of Vocational and Community Education:

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INTRODUCTION

This task analyses guide is designed to be used in combination with the Agricultural Education Service Area Resource in order to implement competency-based education in the Agricultural Production program. The service area resource contains information that pertains to all programs within the Agricultural Education area; the sections of that publication are titled Occupational Information, Student Organization (FFA), Classroom Management Systems, and Recording Systems. The task analyses guide contains the task inventory for livestock production instruction, suggested task sequence list, and content outline for specific instruction in livestock production included in Agricultural Production IV and V. Detailed instructions for combined use of these two publications are contained within the service area resource.

Using the Task Analyses

Section 1 contains a validated task inventory for the livestock production portion of Agricultural Production IV and V. For each task, applicable information pertaining to performance and enabling objectives, criterion-referenced measures, and suggested instructional activities and aids is provided. Tasks are arranged by worker duty area only, and the suggested task sequence list from Section 2 (as adapted by the local system) should be used to establish teaching order of the tasks.

Section 2 of the task analyses guide provides descriptions of the Agricultural Production program and second- and third-year courses, followed by a suggested task sequence listing and outline for livestock production. The instructional topics within the course outline have been cross-referenced with corresponding task/competency codes from the task inventory in Section 1.

It is suggested that the Section 2 task sequence list and content outline be reviewed initially to determine if any desired changes in sequencing of instruction should be made. Once the sequencing is confirmed, instructional planning and implementation may proceed through referral to the Section 1 task/competency sheet noted beside each instructional topic within the outline.

SECTION 1

TASK INVENTORY

One of the major characteristics of competency-based education (CBE) is that the course content is based upon actual jobs or tasks performed by the worker. In Virginia, the Department of Education has established standards for competency-based education. According to these standards, competencies must be role-relevant and based upon appropriate research. This standard states:

> Role-relevant competencies are identified and stated.
>
> The competencies, with standards, will be identified through V-TECS, IDECC, and other appropriate research. Advisory committees should be used to review competencies and standards. Competencies in the affective domain will be included. Role-relevant competencies for occupational preparation programs are those that specifically relate to the occupation for which the student is being prepared, as well as to the personal needs of the student. Role-relevant competencies are related also to orientation, exploration, and/or industrial arts experiences which have been identified for students.

Therefore, role-relevant jobs or tasks, called competencies in CBE, must be identified and validated before instructional materials are developed and subsequent instruction takes place. The task list in this task analyses guide is based on the following:

1. Job titles and descriptions found in the Occupational Outlook Handbook and the Dictionary of Occupational Titles
2. Input from agricultural education supervisors and experienced agricultural production teachers.

Information collected and reviewed from these sources was used to develop an initial task list. The next step involved in preparing the final task inventory was validation of the task list. Validation is essential if the information collected is to be useful in operating CBE courses and programs. The validation process included interviews with various professionals involved in both agricultural occupations and teachers of livestock production on the secondary level.

The task analysis sheets are arranged by duty areas for the specific domain covered by the guide. Information contained on each sheet is as follows:

1. The task/competency for a given duty area which is performed by incumbent workers
2. Program and course application information
3. Performance and enabling objectives for instructional planning
4. Criterion-referenced measures of test items used to determine successful attainment of the task/competency by the student
5. Instructional activities and steps required for teaching the task/competency
6. Tools, equipment, and materials/supplies required to provide necessary instruction
7. References and audiovisual materials helpful in teaching the task/competency.

In many instances, learning activities leading to mastery of task/competencies outlined in this section may take place in a cooperative work setting. However, almost all performance objectives are presented for classroom or laboratory instruction so they may be used in localities where cooperative work opportunities do not exist; the objectives may be easily adapted to actual work situations.

TASK INVENTORY FOR

LIVESTOCK PRODUCTION

DUTY AREAS

1. PERFORMING GENERAL LIVESTOCK DUTIES
2. RAISING BEEF CATTLE
3. RAISING DAIRY CATTLE
4. RAISING SWINE
5. RAISING HORSES
6. RAISING SHEEP

This instructional resource has been prepared for statewide distribution. Local vocational teachers or program designers are encouraged to adapt the content of the task inventory and teaching sequence to fit the needs of their students and community.

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

TASKS/COMPETENCIES

1.1 List and explain methods of identifying livestock

1.2 Explain methods of castrating livestock

1.3 List and explain methods of restraining livestock

1.4 Plan procedure to load livestock on trucks

1.5 Compare types of common livestock bedding materials

1.6 List disinfectants used to treat injured livestock

1.7 Develop a parasite control program

1.8 Vaccinate livestock

1.9 Match names of common livestock diseases to the proper treatments

1.10 Explain methods of disposing of dead animals

1.11 Outline procedures for fitting and showing livestock

1.12 Complete production record forms

1.13 Complete farm income and expense record forms

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

TASK/COMPETENCY

1.1 List and explain methods of identifying livestock

Application

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV

1.1

PERFORMANCE OBJECTIVE

P1.1 Given a display of six pieces of livestock identification equipment, list and explain methods of identifying livestock by naming five pieces of equipment, stating the use of each, and giving an advantage of each method, all with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.1.1 Explain reasons for marking livestock.

E1.1.2 Identify methods of branding.

E1.1.3 Explain advantages of tattooing.

E1.1.4 Identify equipment used for ear notching and tagging.

E1.1.5 Name identification methods most often used on purebred animals.

CRITERION-REFERENCED MEASURE

C1.1 Five of six methods of identifying livestock listed and explained, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students complete student materials in Forms of Animal Identification (E1.1.1-E1.1.5).
2. Display marking equipment and discuss which methods are most often used for which types of animals (E1.1.2-E1.1.5).
3. Arrange a field trip to a local livestock operation where students can observe or assist in the marking of animals for identification (E1.1.1-E1.1.5).

SELECTED TOOLS AND MATERIALS

Hot irons
Freeze branding irons
Horn irons
Ear notchers
Ear tags
Tattooing pliers

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Forms of Animal Identification. Texas A & M University.

Modern Livestock & Poultry Production, 2nd ed., pp. 164-165. Gillespie.

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

TASK/COMPETENCY

1.2 Explain methods of castrating livestock

---Application---

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV

1.2

PERFORMANCE OBJECTIVE

P1.2 Given a list of the methods of castrating livestock, explain each method by completing a written quiz with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E1.2.1 Identify castration equipment.

E1.2.2 State reasons for castrating livestock.

E1.2.3 Determine the best time to castrate bulls and boars.

E1.2.4 Identify bloodless methods of livestock castration.

CRITERION-REFERENCED MEASURE

C1.2 Instructor-prepared quiz, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Display various pieces of equipment used for castrating livestock and explain how each is used (E1.2.1, E1.2.4).
2. Discuss reasons for castrating livestock raised for slaughter (E1.2.2).
3. Explain when bulls and boars are normally castrated and why this is done when they are very young (E1.2.3).
4. Have students complete materials in Castrating and Docking Procedures (E1.2.1-E1.2.4).

SELECTED TOOLS AND MATERIALS

Knife
Scalpel
Emasculator
Burdizzo
Elastrator
Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Castrating and Docking Procedures. Texas A & M University.

Modern Livestock & Poultry Production, 2nd ed., pp. 162-163, 279. Gillespie.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.3 List and explain methods of restraining livestock

COURSE

Agricultural Production IV

1.3

PERFORMANCE OBJECTIVE

P1.3 Given safety information for persons working with farm animals, list and explain methods of restraining livestock with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E1.3.1 Identify equipment used to restrain livestock.

E1.3.2 Determine occasions when livestock should be restrained.

E1.3.3 List safety rules for handling and restraining horses.

E1.3.4 Describe how chutes and headgates are used to restrain cattle.

CRITERION-REFERENCED MEASURE

C1.3 Instructor-prepared test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Introduce topic of livestock restraint in the context of overall safety for both handlers and animals, and explain occasions when livestock must or should be restrained (E1.3.2).
2. Display illustrations of livestock restraining equipment and have students identify (E1.3.1).
3. Have students list and explain safety procedures for handling and restraining horses (E1.3.3).
4. Explain use of headgates and squeeze chutes for cattle restraint (E1.3.4).
5. Have students complete materials in Handling and Restraint of Livestock (E1.3.1-E1.3.4).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Illustrations of livestock restraining equipment

SELECTED REFERENCES

Handling and Restraint of Livestock, pp.1-8. Texas A & M University.
Modern Livestock & Poultry Production, 2nd ed., pp. 26-29. Gillespie.

Application

DUTY AREA
1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
1.4 Plan procedure to load livestock on trucks

COURSE
Agricultural Production IV

1.4

PERFORMANCE OBJECTIVE

P1.4 Given the truck sizes and weight of animals, plan procedure for loading livestock by calculating with 100% accuracy the number of animals per truck and listing all safety precautions necessary to prevent injury to animals and handlers.

SELECTED ENABLING OBJECTIVES

E1.4.1 List precautions necessary for loading and hauling livestock.

E1.4.2 Determine the number of animals that may be safely loaded on a truck.

E1.4.3 Identify bedding for trucks.

CRITERION-REFERENCED MEASURE

C1.4 Procedure to load livestock onto trucks, to include:

a. Calculation of number of animals per truck (100% accuracy)

b. List of all safety precautions

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students to complete student materials in Handling and Restraint of Livestock, pages 8-11 (E1.4.1-E1.4.3).
2. Allow students to observe loading and unloading of livestock and report on procedures and safety precautions noted during their observation (E1.4.1-E1.4.3).
3. Have students identify bedding materials used during livestock transportation (E1.4.3).

SELECTED TOOLS AND MATERIALS

Overhead projector

SELECTED AUDIOVISUAL MATERIALS

Transparency: chart showing the number of animals that may be safely loaded on a truck (teacher-prepared)

SELECTED REFERENCES

Handling and Restraint of Livestock, pp. 8-11. Texas A & M University.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.5 Compare types of common livestock bedding materials

COURSE

Agricultural Production IV

1.5

PERFORMANCE OBJECTIVE

P1.5 Given a list of common livestock bedding materials, compare types of materials by listing the advantages and disadvantages of each with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.5.1 Identify common bedding materials.

E1.5.2 Determine the purpose of bedding materials.

E1.5.3 Determine types of bedding materials used in stalls, pens, sheds, and trucks.

E1.5.4 Demonstrate how to spread various bedding materials.

CRITERION-REFERENCED MEASURE

C1.5 Advantages and disadvantages of common bedding materials listed with 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show students samples of common bedding materials (E1.5.1, E1.5.3).
2. Demonstrate and have students practice spreading bedding materials (E1.5.4).
3. Discuss the purpose of bedding materials for livestock (E1.5.2).

SELECTED TOOLS AND MATERIALS

Sample bedding materials
Pitchfork

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 735-736. Ensminger.

Application

DUTY AREA

1.6 PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.6 List disinfectants used to treat injured livestock

COURSE

Agricultural Production IV

1.6

PERFORMANCE OBJECTIVE

P1.6 Given information on treatment of livestock injuries, list disinfectants that may be used to treat injured livestock with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.6.1 Identify characteristics of injured cattle.

E1.6.2 Explain or demonstrate how to restrain injured livestock.

E1.6.3 Identify common livestock injuries.

CRITERION-REFERENCED MEASURE

C1.6 Disinfectants used to treat injured livestock listed with 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review methods of restraining livestock (E1.6.2).
2. Discuss characteristics of injured livestock (E1.6.1).
3. Discuss examples of livestock injuries and how they are best treated (E1.6.3).
4. Display samples of various disinfectants and discuss label information and directions for use (E1.6.1-E1.6.3).

SELECTED TOOLS AND MATERIALS

Sample disinfectants

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 984-985. Ensminger.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.7 Develop a parasite control program

COURSE

Agricultural Production IV

1.7

PERFORMANCE OBJECTIVE

P1.7 Given program guidelines and information on internal and external parasites, develop a program for parasite control for cattle, sheep, or swine. Program must include identification of parasites, prevention measures, and treatment of affected livestock, and must be rated acceptable according to an instructor-prepared checklist based on guidelines provided.

SELECTED ENABLING OBJECTIVES

E1.7.1 Identify common external parasites of livestock.

E1.7.2 List and explain methods of controlling external parasites.

E1.7.3 Identify legal constraints related to chemical control of external parasites.

E1.7.4 Identify common internal parasites of cattle, horses, sheep, and swine.

E1.7.5 List symptoms of livestock suffering from internal parasites.

E1.7.6 Explain methods of treating livestock for parasites.

E1.7.7 Explain importance of parasite control to the livestock operation.

CRITERION-REFERENCED MEASURE

C1.7 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the importance of parasite control in the livestock operation (E1.7.7).
2. Provide illustration or show filmstrip on external and internal parasites and discuss the effects of each on the animals they infest (E1.7.1, E1.7.4).
3. Have students make a chart identifying parasites, the symptoms of parasite infection in various animals, and the preferred treatment (E1.7.1, E1.7.4-E1.7.6).
4. Invite an agricultural extension agent to explain to the class the methods of controlling external parasites and the regulations involving use of chemical controls (E1.7.2, E1.7.3).
5. Have students complete materials in External Parasites of Livestock and Internal Parasites of Livestock (E1.7.1-E1.7.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/cassette: Pests of Cattle. Vocational Agriculture Service.

SELECTED REFERENCES

"External Parasites and Cattle Grubs of Beef Cattle and Their Control." Virginia Beef Cow-Calf Handbook, SR 6009. VPI & SU.
External Parasites of Livestock. Texas A & M University.
Internal Parasites of Livestock. Texas A & M University.
Modern Livestock & Poultry Production, 2nd ed., pp. 195-196, 292-293, 384-390, 472-474. Gillespie.
The Stockman's Handbook, 5th ed., pp. 919-959. Ensminger.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.8 Vaccinate livestock

COURSE

Agricultural Production IV, V

1.8

PERFORMANCE OBJECTIVE

P1.8 Given access to livestock, vaccine, and other necessary materials, vaccinate livestock according to the vaccine manufacturer's directions.

SELECTED ENABLING OBJECTIVES

E1.8.1 Identify types of vaccines that are available and the diseases they prevent.

E1.8.2 Demonstrate proper use of hypodermic syringe.

E1.8.3 Outline safety precautions necessary during the vaccination process.

E1.8.4 Determine when animals should be given selected vaccines.

CRITERION-REFERENCED MEASURE

C1.8 Livestock vaccinated according to directions from the vaccine manufacturer

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show filmstrip on Vaccinating Methods (E1.8.1-E1.8.3).
2. Ask a local veterinarian to talk to the class about current research being done in the field of animal disease prevention and treatment (E1.8.1).
3. Have students construct a chart identifying type of animal, vaccine, disease prevented by the vaccine, and time of vaccination (E1.8.1-E1.8.4).
4. Demonstrate how to administer vaccines and assist students as they return demonstration (E1.8.2, E1.8.3).

SELECTED TOOLS AND MATERIALS

Hypodermic syringe
Chart construction materials

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Vaccinating Methods. Nasco.

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 987-1006. Ensminger.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.9 Match names of common livestock diseases to the proper treatments

COURSE

Agricultural Production IV

1.9

PERFORMANCE OBJECTIVE

P1.9 Given a list of common livestock diseases, match the name of each with its proper treatment with 100% accuracy on a written quiz.

SELECTED ENABLING OBJECTIVES

E1.9.1 Identify common diseases of cattle, sheep, pigs, and horses.

E1.9.2 List symptoms of common livestock diseases.

E1.9.3 Identify causes of common livestock diseases.

E1.9.4 Describe measures that can prevent disease or the spread of disease among herds.

E1.9.5 Explain or demonstrate how various medications are administered to animals.

CRITERION-REFERENCED MEASURE

C1.9 Instructor-prepared quiz, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Divide class into four groups and have each research diseases common to one type of livestock; ask each group to report the name of the disease, symptoms, preferred treatments, and preventive measures (E1.9.1-E1.9.4).
2. Invite a resource person to discuss causes of common livestock diseases and the most effective ways to prevent these diseases or their spread to other animals (E1.9.3-E1.9.5).
3. Have students complete materials in Bacterial, Viral, Nutritional, Fungal, and Miscellaneous Diseases (E1.9.1-E1.9.3).
4. Arrange an opportunity for students to observe or assist in administering medication to livestock (E1.9.5).
5. Review vaccination methods (Task 1.8) (E1.9.5).
6. Display illustrations or slides of animals showing symptoms of common diseass (E1.9.2).

SELECTED TOOLS AND MATERIALS

Balling gun
Hypodermic syringe
Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

Slides: Diseases in Feeder Cattle. Nasco.
Illustrations of animals showing symptoms of common livestock diseases

SELECTED REFERENCES

"Administration of Medication and Vaccine to Cattle." Virginia Beef Cow-Calf Handbook, SR 6007. VPI & SU.
Bacterial, Viral, Nutritional, Fungal, and Miscellaneous Diseases. Texas A & M University.
Modern Livestock & Poultry Production, 2nd ed., pp. 188-195, 285-291, 381-383, 468-472. Gillespie.
The Stockman's Handbook, 5th ed., pp. 875-917. Ensminger.

DUTY AREA
1. PERFORMING GENERAL LIVESTOCK DUTIES

TASK/COMPETENCY
1.10 Explain methods of disposing of dead animals

1.10

---Application---

PROGRAM
AGRICULTURAL PRODUCTION

COURSE
Agricultural Production IV

PERFORMANCE OBJECTIVE

P1.10 Given information on environmental concerns, explain two methods of disposing of dead animals by completing appropriate instructor-prepared test items with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.10.1 Identify methods of carcass disposal.

E1.10.2 Explain why dead animals must be disposed of properly.

E1.10.3 Identify local and state regulations and practices dealing with carcass disposal.

E1.10.4 Outline procedure to disinfect site where a dead animal has lain.

E1.10.5 List requirements for burial of dead animals.

E1.10.6 List requirements for burning of carcasses.

E1.10.7 Outline safety precautions to observe when handling dead animals.

CRITERION-REFERENCED MEASURE

C1.10 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students discuss reasons for proper disposal of dead animals and list safety rules for handling carcasses (E1.10.2, E1.10.7).
2. Have selected students contact local livestock owners and ask them how they dispose of dead animals (E1.10.1).
3. Invite a public health official to discuss the environmental concerns and regulations deaing with disposal of dead livestock (E1.10.2-E1.10.6).
4. Have students draw plans for livestock burial pits (E1.10.5).

SELECTED TOOLS AND MATERIALS

Drawing materials
Instructor-prepared test items

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Cattle Rancher, Performance Objective 31. V-TECS.
Modern Livestock & Poultry Production, 2nd ed., pp. 40-41. Gillespie.
The Stockman's Handbook, 5th ed., p. 986. Ensminger.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.11 Outline procedures for fitting and showing livestock

COURSE

Agricultural Production IV

1.11

PERFORMANCE OBJECTIVE

P1.11 Given necessary references, outline procedures for fitting and showing cattle, horses, or swine by completing an instructor-prepared worksheet with 80% accuracy.

SELECTED ENABLING OBJECTIVES

E1.11.1 Outline procedures for grooming livestock for show.

E1.11.2 Outline procedure for showing horses at halter.

E1.11.3 Explain how calves are halter broken.

E1.11.4 Outline procedures for clipping ears and tail of a gilt or sow to be shown.

E1.11.5 Describe how livestock are judged at shows.

E1.11.6 Explain rules of FFA livestock show competition.

CRITERION-REFERENCED MEASURE

C1.11 Instructor-prepared worksheet, 80% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss how various types of livestock are groomed for show (E1.11.1).
2. Invite local owners of show livestock to demonstrate how they groom and fit their animals for competition (E1.11.2-E1.11.4).
3. Arrange a field trip to a horse show or agricultural fair where livestock are shown (E1.11.1-E1.11.5).
4. Discuss rules for entering local FFA livestock shows; allow interested students to enter, or arrange a classwide competition based on FFA guidelines (E1.11.5, E1.11.6).
5. Display illustrations of prizewinning livestock and discuss the animals' traits (E1.11.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheets on fitting and showing specific types of livestock

SELECTED AUDIOVISUAL MATERIALS

Illustrations of prizewinning show animals

SELECTED REFERENCES

Cattle Rancher, Performance Objective 131. V-TECS.
Modern Livestock & Poultry Production, 2nd ed., pp. 483-485. Gillespie.
Swine Farmer, Performance Objective 100. V-TECS.

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

TASK/COMPETENCY

1.12 Complete production record forms

---Application---

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV

1.12

PERFORMANCE OBJECTIVE

P1.12 Given forms and information on a simulated livestock production operation, complete production records with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.12.1 Identify information needed for production records.

E1.12.2 Define production testing and performance testing.

E1.12.3 Keep breeding records.

E1.12.4 Identify types of production record forms.

E1.12.5 Keep health records.

CRITERION-REFERENCED MEASURE

C1.12 Production record forms completed with 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Distribute examples of production record forms (E1.12.1, E1.12.4).
2. Use transparencies to demonstrate filling out production record forms (E1.12.3, E1.12.5).
3. Have students define terms related to production records (E1.12.2).

SELECTED TOOLS AND MATERIALS

Samples of production forms
Overhead projector

SELECTED AUDIOVISUAL MATERIALS

Transparencies of production record forms (teacher-provided)

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 134-166. Ensminger.

Application

DUTY AREA

1. PERFORMING GENERAL LIVESTOCK DUTIES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

1.13 Complete farm income and expense record forms

COURSE

Agricultural Production IV

1.13

PERFORMANCE OBJECTIVE

P1.13 Given forms and information concerning a simulated farm operation, complete income and expense record forms with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E1.13.1 Identify the need for accurate farm records.

E1.13.2 Identify items to be included in a farm budget.

E1.13.3 Calculate the cost of credit.

E1.13.4 Record information on forms.

E1.13.5 Identify samples of recordkeeping forms.

CRITERION-REFERENCED MEASURE

C1.13 Farm income and expense forms complete with 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Distribute and discuss samples of income, expense, and budget forms (E1.13.4).
2. Fill out forms on the overhead transparency (E1.13.4).
3. Have students discuss the need for accurate records and a farm budget (E1.13.1, E1.13.2).
4. Ask an official from a bank or other lending agency to discuss with the class the cost of credit and the importance of financial planning (E1.13.3).

SELECTED TOOLS AND MATERIALS

Overhead projector
Samples of expense income records
Samples of farm budgets

SELECTED AUDIOVISUAL MATERIALS

Transparencies of expense, income, and farm budget forms (teacher-prepared)

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 65-119. Ensminger.

DUTY AREA

2. RAISING BEEF CATTLE

TASKS/COMPETENCIES

2.1 Select beef cattle

2.2 List and explain criteria used to cull undesirable cows

2.3 Explain methods used to dehorn cattle

2.4 List and explain signs of heat in cattle

2.5 Identify signs of pregnancy in cows

2.6 Develop a plan for a controlled seasonal breeding program

2.7 Describe procedures for assisting in delivery of calves

2.8 Explain procedures for caring for calves at calving time

2.9 Determine the age for and list precautions to use when weaning calves

2.10 List and explain factors that determine creep feeding

2.11 Develop a feeding program for a beef animal

2.12 Describe procedures for managing the herd bull

2.13 Calculate cost of a beef operation

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.1 Select beef cattle

COURSE

Agricultural Production IV, V

2.1

PERFORMANCE OBJECTIVE

P2.1 Given information on conformation and heritability in beef cattle and necessary references, select beef cattle by describing an ideal beef animal in a written report. Description must include identification of conformation factors and heritable traits deemed desirable and a determination of those breeds most likely to possess these characteristics. Report must be rated acceptable according to guidelines provided in class.

SELECTED ENABLING OBJECTIVES

E2.1.1 Define conformation and heritability and identify methods of determining factors associated with each.

E2.1.2 Identify parts of a beef animal.

E2.1.3 Identify beef wholesale cuts.

E2.1.4 Identify common breeds of beef and their characteristics.

E2.1.5 Describe the use of ultrasonics in selecting a beef animal.

E2.1.6 Define selected terms associated with conformation of breeding and slaughter cattle.

E2.1.7 Identify desirable heritable traits in beef cattle.

E2.1.8 Identify those traits which are most highly heritable.

CRITERION-REFERENCED MEASURE

C2.1 Written report describing ideal beef animal, rated acceptable according to guidelines provided, and to include:

a. Desirable conformation factors
b. Desirable heritable traits
c. Breeds displaying those characteristics

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show filmstrip Beef Breed Selection to introduce topic; have students define conformation and heritability and describe how the cattle producer determines each (E2.1.1).
2. Provide illustrations of beef animal and have students label the parts (E2.1.2).
3. Arrange a field trip to a large supermarket so students can observe the handling of wholesale cuts of beef (E2.1.3).
4. Have students construct a chart identifying various breeds of beef and their most distinctive characteristics (E2.1.4).
5. Invite an agricultural extention agent or other resource person to discuss the most popular breeds of beef cattle raised locally and why those breeds have been selected (E2.1.4).
6. Arrange an opportunity for students to observe pairs of live beef cattle and have them compare the conformation of each animal in the pair, using the terms associated with judging (E2.1.6).
7. Explain how ultrasonics can help determine good breeding animals (E2.1.5).
8. Discuss which heritable traits (both physical and behavioral) are most desired in breeding animals and in slaughter cattle (E2.1.7).
9. Provide table of heritability estimates for cattle for student reference (E2.1.8).
10. Have students complete materials in Selecting Beef Cattle and Breeds of Beef (E2.1.1-E2.1.8).

SELECTED TOOLS AND MATERIALS

Illustrations of beef animal for labeling of parts
Chart construction materials
Table of heritability estimates for cattle
Report guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Beef Breed Selection. Prentice-Hall Media.

SELECTED REFERENCES

Breeds of Beef. Texas A & M University.
Modern Livestock & Poultry Production, 2nd ed., pp. 84. Gillespie.
Selection of Beef Cattle. Texas A & M University.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.2 List and explain criteria used to cull undersirable cows

COURSE

Agricultural Production IV, V

2.2

PERFORMANCE OBJECTIVE

P2.2 Given information on beef cattle selection, list and explain criteria used to cull undesirable cows with 90% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E2.2.1 Identify methods of selecting beef cattle.

E2.2.2 Identify heritable traits in cattle.

E2.2.3 Define performance testing, production testing, and progeny testing.

E2.2.4 List the benefits of performance records.

E2.2.5 List the steps involved in performance testing.

E2.2.6 Identify factors to consider when selecting a herd bull and dams.

CRITERION-REFERENCED MEASURE

C2.2 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review Task 2.1 in terms of selection methods and heritability (E2.2.1, E2.2.2).
2. Explain the concept of peformance testing, and assist students in setting up and conducting performance testing on their home herds, if possible (E2.2.3, E2.2.5).
3. Have students calculate 205-day adjusted weaning weights and adjusted yearling weights on worksheets which supply cattle descriptions and formulas (E2.2.5).
4. Discuss the uses of performance testing (E2.2.4).
5. Show filmstrips and have students list and discuss factors involving the selection of beef sires and females (E2.2.6).
6. Prepare and distribute handouts from "Selection and Culling of Females" (E2.2.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test
Handouts for Activity 6
Worksheet for weight calculations

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Selecting Beef Sires. Prentice-Hall Media.
Filmstrip/Cassette: Selecting Beef Females. Prentice-Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 137-140. Gillespie.
"Selection and Culling of Females." Virginia Beef Cow-Calf Handbook, SR 1004. VPI & SU.

DUTY AREA
2. RAISING BEEF CATTLE

----------Application----------

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
2.3 Explain methods used to dehorn cattle

COURSE
Agricultural Production IV, V

2.3

PERFORMANCE OBJECTIVE

P2.3 Given information on dehorning cattle, explain chemical, heat, and cutting methods used to dehorn cattle by completing written test items with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E2.3.1 Identify three methods of dehorning cattle.

E2.3.2 State the major reason calves and cows should be dehorned.

E2.3.3 Identify and explain the use of selected equipment used for dehorning.

E2.3.4 Explain major methods of dehorning calves.

E2.3.5 Explain how to control bleeding in older cows during and after the dehorning procedure.

E2.3.6 State safety precautions associated with various dehorning tools and supplies.

CRITERION-REFERENCED MEASURE

C2.3 Instructor-prepared written test items, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show filmstrip to introduce methods and procedures used to dehorn cattle. Lead a discussion on the advantages and disadvantages of each method (E2.3.1, E2.3.2).
2. Display and explain or demonstrate the use of various dehorning equipment (E2.3.3).
3. Explain why different methods of dehorning may be selected for calves and older cows, and precautions to take with various methods (E2.3.4-E2.3.6).
4. Have students complete materials in Dehorning Procedures (E2.3.1-E2.3.6).
5. Invite a local cattle rancher to explain the dehorning process (E2.3.1-E2.3.6).

SELECTED TOOLS AND MATERIALS

Electrical dehorner
Chemical dehorning pastes
Spoon and tube dehorners
Dehorning clippers
Instructor-prepared test items on dehorning methods

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Dehorning Cattle. Vocational Agricultural Service.

SELECTED REFERENCES

"Castration and Dehorning." Virginia Beef Cow-Calf Handbook, SR 3004. VPI & SU.
Dehorning Procedures. Texas A & M University.
Modern Livestock and Poultry Production, 2nd ed., pp. 163-164. Gillespie.

DUTY AREA

2. RAISING BEEF CATTLE

TASK/COMPETENCY

2.4 List and explain signs of heat in cattle

---------- Application ----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

2.4

PERFORMANCE OBJECTIVE

P2.4 Given information on the reproduction cycle of cattle, list and explain signs of heat in cattle with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E2.4.1 Identify observable signs of heat.

E2.4.2 Identify mechanical methods of detecting heat.

E2.4.3 Identify the average age of puberty, length of reproduction cycle, and length of estrus in cows.

CRITERION-REFERENCED MEASURE

C2.4 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show students heat detection devices and discuss how they are used (E2.4:2).
2. Discuss signs of heat that can be observed without use of detection devices (E2.4:1).
3. Discuss the estrus cycle of cows as an introduction to unit on breeding practices (E2.4:3).

SELECTED TOOLS AND MATERIALS

Heat detection devices
Instructor-prepared test items on methods of detecting heat in cattle

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 98-99. Gillespie.
The Stockman's Handbook, 5th ed., pp. 176-179. Ensminger.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.5 Identify signs of pregnancy in cows

COURSE

Agricultural Production IV, V

2.5

PERFORMANCE OBJECTIVE

P2.5 Given information on the reproductive system in cattle, identify signs of pregnancy in cows that would be determined by palpation of uterus. Identification must be 100% accurate.

SELECTED ENABLING OBJECTIVES

E2.5.1 Identify the parts and functions of the cow's reproductive system.

E2.5.2 Identify equipment needed for palpation procedure.

E2.5.3 List safety practices to be followed during palpation.

E2.5.4 Outline procedures for palpating cow's uterus.

CRITERION-REFERENCED MEASURE

C2.5 Identification of signs of pregnancy in cows, determined by palpation; 100% accuracy.

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show transparency of the cow's reproduction system and discuss the functions of each part (E2.5.1).
2. Show and demonstrate the use of palpation eqipment (E2.5.2).
3. Have students make a list of safety procedures to follow when palpating (E2.5.3).
4. Illustrate palpation procedure (E2.5.4).
5. Discuss signs of pregnancy to be noted during palpation: changes in tone, size, and location of the uterine horns and changes in uterine arteries (E2.5.1-E2.5.4).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

Transparency of the cow's reproductive system (teacher-provided)

SELECTED REFERENCES

Cattle Rancher, Performance Objectives 34. V-TECS.
"Determining Pregnancy in Cattle." Virginia Beef Cow-Calf Handbook, SR 1006. VPI & SU.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.6 Develop a plan for a controlled seasonal breeding program

COURSE

Agricultural Production IV, V

2.6

PERFORMANCE OBJECTIVE

P2.6 Given program guidelines and description of a beef cattle herd, develop a plan for a controlled seasonal breeding program. Plan must recommend the best type and length of the breeding season for the described herd and include facts which support the recommended program. Plan must be rated acceptable according to instructor-prepared checklist based on program guidelines.

SELECTED ENABLING OBJECTIVES

E2.6.1 State reasons for following a controlled breeding program.

E2.6.2 Define straight breeding and crossbreeding.

E2.6.3. Explain methods used to improve beef cattle herds.

E2.6.4 Determine the best breeding season for a selected herd.

E2.6.5 Determine the length of the breeding season.

CRITERION-REFERENCED MEASURE

C2.6 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss reasons for following a controlled breeding program (E2.6.1).
2. Prepare a bulletin board display diagramming selected systems of crossbreeding and expected results (E2.6.2).
3. Have students research and report on systems of straightbreeding and how these may improve a herd (E2.6.2, E2.6.3).
4. Arrange for students to interview various local farmers about their breeding programs and how they are implemented (E2.6.4, E2.6.5).
5. Discuss guidelines for planning a controlled seasonal breeding program (E2.6.1-E2.6.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared guidelines for breeding program
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"A Controlled, Seasonal Cattle Breeding Program." Virginia Beef Cow-Calf Handbook, SR 1005. VPI & SU.
Modern Livestock and Poultry Production, 2nd ed., pp. 104-110. Gillespie.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.7 Describe procedures for assisting in delivery of calves

COURSE

Agricultural Production IV, V

2.7

PERFORMANCE OBJECTIVE

P2.7 Given information on calving, describe procedures for assisting in the delivery of calves by completing a written test with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E2.7.1 Identify signs of impending labor in cows.

E2.7.2 Explain conditions under which a cow needs delivery assistance.

E2.7.3 State problems for which a veterinarian may be required.

E2.7.4 Identify and state the use of equipment used for pulling calves.

E2.7.5 Explain the benefits of good breeding records at calving time.

E2.7.6 Describe preparations the rancher should make for cows at calving time.

CRITERION-REFERENCED MEASURE

C2.7 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss signs of impending labor in cows and preparations the rancher should take so calving is accomplished under optimum conditions (E2.7.1, E2.7.6).
2. Explain the proper presentation of the calf fetus at birth and how to tell if the delivery may be difficult or require assistance from a veterinarian (E2.7.2, E2.7.3).
3. Display equipment for pulling calves and explain use of each item (E2.7.4).
4. Discuss how good breeding records help the rancher prepare for calving season (E2.7.5).

SELECTED TOOLS AND MATERIALS

Antiseptic
Lubricant
Obtetrical chair
Fetal extractor
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Coping With Calving Difficulties." Virginia Beef Cow-Calf Handbook, SR 1002. VPI & SU.
Modern Livestock and Poultry Production, 2nd ed., pp. 100-101, 162. Gillespie.
Virginia Beef Cow-Calf Handbook, SR 1002. VPI & SU.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.8 Explain procedures for caring for calves at calving time

COURSE

Agricultural Production IV, V

2.8

PERFORMANCE OBJECTIVE

P2.8 Given report guidelines and necessary research references, prepare and give an oral report explaining the procedures for caring for calves at calving time. Report must be rated acceptable according to instructor-prepared checklist based on guidelines provided.

SELECTED ENABLING OBJECTIVES

E2.8.1 Explain how to free calf's mouth and nose of mucus and membranes.

E2.8.2 Describe procedures for stimulating calf's respiration and heartbeat.

E2.8.3 Describe procedures for treating the umbilicus.

E2.8.4 Explain how to ensure that newborn calf nurses within the first 12 hours.

E2.8.5 List causes of calf scours and methods of prevention.

E2.8.6 Identify methods of marking calves for identification.

E2.8.7 Record information on calves.

CRITERION-REFERENCED MEASURE

C2.8 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Arrange opportunity for students to interview a resource person (extension agent or veterinarian) on procedures used to ensure calf survival at birth (E2.8.1-E2.8.4).
2. Make a bulletin board display on care of newborn calves and how to prevent disease among calves (E2.8.1-E2.8.5).
3. Discuss the importance of marking calves for identification and recording calving information (E2.8.6, E2.8.7).
4. Divide students into small groups to research and report orally on the care of calves at calving time (E2.8.1-E2.8.7).
5. Have students practice recording calving information (E2.8.7).

SELECTED TOOLS AND MATERIALS

Recording forms
Instructor-prepared report guidelines
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Beef Production, p. 37. Agri-Farm Publications.
Modern Livestock & Poultry Production, 2nd ed., pp. 162, 615. Gillespie.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.9 Determine the age for and list precautions to use when weaning calves

COURSE

Agricultural Production IV, V

2.9

PERFORMANCE OBJECTIVE

P2.9 Given information on weaning calves, determine the age for and list the precautions to use when weaning calves with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E2.9.1 Determine the proper age to wean calves.

E2.9.2 Describe care for the cow during weaning.

E2.9.3 Explain procedures to separate calves from cows at weaning.

CRITERION-REFERENCED MEASURE

C2.9 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss factors which determine the proper age to wean calves (E2.9.1).
2. Arrange a field trip to a cattle ranch so students can observe how calves are separated and cared for during weaning (E2.9.3).
3. Describe procedures to ensure proper care of cows during weaning (E2.9.2).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test items on weaning calves

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

The Stockman's Handbook, 5th ed., pp. 728-729. Ensminger.
"Early Weaning of Beef Calves." Virginia Beef Cow-Calf Handbook, SR 3007. VPI & SU.

DUTY AREA

2. RAISING BEEF CATTLE

TASK/COMPETENCY

2.10 List and explain factors that determine creep feeding

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

2.10

PERFORMANCE OBJECTIVE

P12.10 Given information on calf management, list and explain factors that determine creep feeding of calves by completng written test items with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E2.10.1 Define creep feeding.

E2.10.2 List advantages of creep feeding and conditions under which it would be provided.

E2.10.3 List disadvantages of creep feeding and conditions under which it would not be provided.

E2.10.4 Determine when it is economical to creep feed.

E2.10.5 List possible components of creep feed.

CRITERION-REFERENCED MEASURE

C2.10 Instructor-prepared written test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define creep feeding (E2.10.1).
2. List on the blackboard the determining factors for creep feeding and assign each to a small group of students. Have each small group explain its assigned factor to the class (E2.10.2, E2.10.3).
3. Discuss the advantages and disadvantages of creep feeding as applied to local beef producers (E2.10.2-E2.10.4).
4. Describe various situations with different farm goals and have students discuss whether creep feeding would be economical (E2.10.4).
5. Discuss creep feed rations and procedures for providing feed and ensuring that calves will eat the feed (E2.10.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test items

SELECTED AUDIOVISUAL MATERIALS

None provided

SELECTED REFERENCES

"Creep Feeding Nursing Beef Calves." Virginia Beef Cow-Calf Handbook, SR 3005. VPI & SU.

Modern Livestock and Poultry Production, 2nd ed., pp. 154-156. Gillespie.

----------Application----------

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.11 Develop a feeding program for a beef animal

COURSE

Agricultural Production IV, V

2.11

PERFORMANCE OBJECTIVE

P2.11 Given information on nutrient requirements and necessary references, develop a feeding program for one type of beef animal (bulls, show animals, replacement heifers, weaned calves, gestating or lactating brood cows and heifers, or feeder steers) by completing an instructor-prepared worksheet with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E2.11.1 Identify type and size of animal.

E2.11.2 Identify purposes for which different feeding programs may be developed.

E2.11.3 Determine minimum daily nutritional requirements for various animals for expected performance.

E2.11.4 Identify types of protein, minerals, and vitamins required by cattle.

E2.11.5 Identify supplements added to feed ration.

E2.11.6 Identify symptoms of nutritional deficiencies in cattle.

E2.11.7 Describe procedures for providing sufficient water for cattle.

CRITERION-REFERENCED MEASURE

C2.11 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Lead a discussion on how the amount and balance of feed ration required differs according to size, age, sex, production stage, and purpose for which the animal is being raised (E2.11.1, E2.11.3).

2. Have students use nutritional requirement tables to determine requirements for various types of beef animals (E2.11.3).

3. Have students complete student materials in Feed Nutrients and Classes of Feed (E2.11.3, E2.11.4).

4. Have students use feed composition tables to determine balance of components in feed (E2.11.4).

5. Discuss supplements that can be added to feed and the purpose of each (E2.11.5).

6. Have students make a chart showing symptoms of nutritional deficiencies in cattle matched with the particular protein, energy source, vitamin, or mineral required for optimum health (E2.11.6).

7. Discuss how much water is required by cattle and methods of providing it (E2.11.7).

8. Provide worksheets for students to use in developing feeding programs (E2.11.1-E2.11.6).

SELECTED TOOLS AND MATERIALS

Chart construction materials
Instructor-prepared worksheets
Nutritional requirements chart
Feed composition chart

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Cattle Rancher. Performance Objectives 64-69, 71, 72. V-TECS.
Feed Nutrients and Classes of Feed. Texas A & M University.
"Minerals for Beef Cattle." Virginia Beef Cow-Calf Handbook, SR 2004. VPI & SU.
The Stockman's Handbook, 5th ed., p. 444. Ensminger.

DUTY AREA

2. RAISING BEEF CATTLE

TASK/COMPETENCY

2.12 Describe procedures for managing the herd bull

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

2.12

PERFORMANCE OBJECTIVE

P2.12 Given information on herd management, describe the procedures for managing a herd bull by outlining requirements for feeding, handling, housing, and using the bull for breeding. An instructor-prepared worksheet must be completed with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E2.12.1 Identify feed ration requirements for young and mature bulls.

E2.12.2 Explain the importance of maintaining the herd bull's desired weight.

E2.12.3 Describe procedures for teaching the calf to lead, ringing the bull, leading the bull, dehorning, and trimming the hooves of bulls.

E2.12.4 Outline requirements for housing the bull.

E2.12.5 List safety precautions to follow when handling and managing a herd bull.

E2.12.6 Identify factors which determine when a bull should be used for breeding and the number of cows serviced.

CRITERION-REFERENCED MEASURE

C2.12 Instructor-prepared worksheet, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain special feed requirements for young bulls and why it is important for their weight to develop properly (E2.12.1, E2.12.2).
2. Have students calculate amounts of feed rations needed for bulls of various ages and weights (E2.12.1, E2.12.2).
3. Describe procedures for handling bulls and have students outline procedures for ringing and leading a bull, emphasizing safety rules (E2.12.3, E2.12.5).
4. Review procedure for dehorning and briefly describe how hooves are trimmed (E2.12.3).
5. Arrange a field trip to a cattle operation where herd bulls are used so students can observe the proper facilities for housing the bull (E2.12.4).
6. Have students design proper housing for a herd bull (E2.12.4).
7. Discuss factors which influence the use of the herd bull for breeding (E2.12.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 129-139. Quinn.
Modern Livestock & Poultry Production, 2nd ed., pp. 156-159. Gillespie.

DUTY AREA

2. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

2.13 Calculate cost of a beef operation

COURSE

Agricultural Production IV, V

2.13

PERFORMANCE OBJECTIVE

P2.13 Given necessary records for a simulated cattle operation, including income, operating expenses, and fixed costs; a description of the cow herd; and a budget form, calculate the cost of a beef operation by completing the budget form according to guidelines provided. All mathematical computations must be performed with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E2.13.1 Name the three main areas of a budget.

E2.13.2 List examples of sources of income and returns generated from a beef enterprise.

E2.13.3 Define operating expenses and calculate according to size of herd.

E2.13.4 List fixed costs associated with a beef operation and explain how they are allocated to various farm enterprises.

E2.13.5 Explain budget "returns to land, labor, capital, machinery, risk and management."

E2.13.6 Calculate total income and total expenses for a simulated beef operation.

E2.13.7 Identify examples of income tax deductions associated with beef production.

E2.13.8 Explain methods of calculating the cost of credit.

E2.13.9 Identify advantages and disadvantages of raising beef cattle as a farm enterprise.

CRITERION-REFERENCED MEASURE

C2.13 Budget form completed according to guidelines; all computations performed with 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the advantages and disadvantages associated with a beef cattle enterprise (E2.13.9).
2. Invite two or three local beef producers to visit the class for a panel discussion on current average operating expenses and average costs of land, labor, and other capital outlay items in the local area (E2.13.1, E2.13.3, E2.13.4).
3. Explain potential sources of income from a beef enterprise (E2.13.1, E2.13.2).
4. Divide class into three groups and have each group perform research and report on one of the main areas of a budget (E2.13.1-E2.13.5).
5. Prepare a transparency of each section of a blank budget form and demonstrate how to fill it out (E2.13.6).
6. Ask an agricultural business teacher to discuss information needed for farm tax returns, using applicable schedules (E2.13.7).
7. Provide practice problems for calculating the cost of credit, using various methods (E2.13.8).

SELECTED TOOLS AND MATERIALS

Sample budget forms (see SR 4002 for format)
Instructor-prepared guidelines for budget form completion
Instructor-prepared practice problems on cost of credit
Calculator

SELECTED AUDIOVISUAL MATERIALS

Transparencies of budget form sections (instructor-prepared)

SELECTED REFERENCES

Agricultural Business Instructional Resource Guide, Tasks 14.2-14.5, 14.12-14.21, 14.33-14.47. Virginia Department of Education.
"The Cost of Credit." Virginia Beef Cow-Calf Handbook, SR 4003. VPI & SU.
"Cow Herd Budget." Virginia Beef Cow-Calf Handbook, SR 4002. VPI & SU.
"Cow Herd Taxes." Virginia Beef Cow-Calf Handbook, SR 4001. VPI & SU.
Modern Livestock & Poultry Production, 2nd ed., p. 113. Gillespie.

DUTY AREA

3. RAISING DAIRY CATTLE

TASKS/COMPETENCIES

3.1 Select an ideal dairy animal

3.2 Identify and explain factors associated with successful dairy breeding

3.3 Describe the process by which cows are artficially inseminated

3.4 Identify practices to improve fertility in the dairy herd

3.5 Develop a plan for raising replacement heifers

3.6 Describe procedures for removing extra teats from heifers

3.7 Describe recommended management of dry cows

3.8 Explain procedures to control mastitis in dairy cows

3.9 Outline procedures for trimming hooves of dairy cattle

3.10 Outline procedures for clipping cows

3.11 List practices which result in milk that meets quality standards

3.12 Explain operation of milking equipment

3.13 Clean milking machine vacuum lines

3.14 Describe recommended milking practices

3.15 Determine nutrient requirements of selected dairy cows

3.16 Develop appropriate rations for dairy cows

3.17 Plan housing facilities for dairy cattle

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.1 Select an ideal dairy animal

COURSE

Agricultural Production IV, V

3.1

PERFORMANCE OBJECTIVE

P3.1 Given descriptions and illustrations of dairy cows with various conformations and heritable traits, select an ideal dairy animal by completing with 100% accuracy an instructor-prepared worksheet based on the judging standards of the Purebred Dairy Cattle Association.

SELECTED ENABLING OBJECTIVES

E3.1.1 List factors to consider when selecting dairy cattle.

E3.1.2 Identify characteristics of a good dairy cow.

E3.1.3 Identify parts of a dairy cow.

E3.1.4 Identify and describe the characteristics of the major breeds of dairy cattle.

E3.1.5 Explain procedures for judging dairy cattle by physical appearance.

E3.1.6 Explain the importance of a dairy cow's pedigree.

E3.1.7 Explain the benefits of milk production records.

E3.1.8 Identify ways to ensure the selection of a healthy dairy animal.

CRITERION-REFERENCED MEASURE

C3.1 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Introduce selection process by showing filmstrips referenced below and discussing the importance of pedigree, milk production records, health, and appearance of dairy cattle (E3.1.1, E3.1.5-E3.1.8).
2. Provide illustrations of a dairy cow and have students label the parts (E3.1.3).
3. Have students construct a chart naming and describing the characteristics of the many dairy cattle breeds (E3.1.4).
4. Invite a local dairy operator to discuss with the class the characteristics of a good dairy cow (E3.1.2).
5. Arrange opportunity for students to observe judging of dairy cattle and discuss the criteria used in judging (E3.1.5).
6. Discuss how a potential buyer of a dairy animal would use information on the animal's health, pedigree, and production records in making a selection (E3.1.6-E3.1.8).

SELECTED TOOLS AND MATERIALS

Description and illustrations of dairy cattle (instructor-provided)
Instructor-prepared worksheet
Chart construction materials

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Breeding of Dairy Cattle. Vocational Agriculture Service.
Filmstrip/Cassette: Dairy Breed Selection. Prentice-Hall Media.
Filmstrip/Cassette: Selecting Dairy Females. Prentice-Hall Media.

SELECTED REFERENCES

Dairy Farm Management, pp. 23-42. Quinn.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.2 Identify and explain factors associated with successful dairy breeding

COURSE

Agricultural Production IV, V

3.2

PERFORMANCE OBJECTIVE

P3.2 Given information on dairy breeding systems, identify and explain the factors associated with successful dairy breeding by completing written test items with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E3.2.1 Identify information to be included in breeding records.

E3.2.2 List the purposes of breeding records.

E3.2.3 Identify important heritable traits.

E3.2.4 Identify dairy breeding systems.

E3.2.5 Explain procedures for detecting heat in cows.

E3.2.6 Determine heat and gestation periods.

E3.2.7 Determine when heifers should be bred.

E3.2.8 Compare the advantages of artificial insemination and natural breeding.

CRITERION-REFERENCED MEASURE

C3.2 Instructor-prepared written test items, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show filmstrip to introduce study of breeding systems (E3.2.4).
2. Display sample breeding records and discuss their maintenance and importance to a successful breeding operation (E3.2.1, E3.2.2).
3. Have students make a chart listing the most desirable and most highly heritable traits in dairy cattle and how these may be bred into or strengthened in an animal (E3.2.3).
4. Review the estrus cycle for cows and explain how the optimum breeding time can be determined (E3.2.5, E3.2.6).
5. Have students calculate calving times for cows bred on various dates (E3.2.6).
6. Discuss how breeding records help the dairy breeder in breeding heifers successfully (E3.2.7).
7. Introduce the subject of artificial insemination and briefly explore its benefits versus the advantages of natural breeding (E3.2.8).

SELECTED TOOLS AND MATERIALS

Sample breeding records
Chart construction materials
Instructor-prepared test items

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Dairy Breeding Systems. Prentice-Hall Media.

SELECTED REFERENCES

Dairy Farm Management, pp. 97-118, 360-376. Quinn.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.3 Describe the process by which cows are artificially inseminated

COURSE

Agricultural Production IV, V

3.3

PERFORMANCE OBJECTIVE

P3.3 Given information on successful cattle breeding, describe with 100% accuracy on a written test the process by which cows are artificially inseminated.

SELECTED ENABLING OBJECTIVES

E3.3.1 Identify the advantages and disadvantages of artificial insemination in cattle breeding.

E3.3.2 Explain the use of breeding records when using an artificial insemination breeding system.

E3.3.3 Identify characteristics desired in a bull used for artificial insemination.

E3.3.4 Explain methods of collecting sperm cells from the bull.

E3.3.5 Explain how bull semen is stored and shipped.

E3.3.6 Identify equipment needed for artificial insemination of the cow.

E3.3.7 Name the parts of the reproductive tracts of the cow and the bull.

CRITERION-REFERENCED MEASURE

C3.3 Instructor-prepared written test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the advantages and disadvantages of artificial insemination in cattle breeding and the factors influencing the decision to use this method of breeding cows (E3.3.1).

2. Review the maintainance of breeding records and their importance when using artificial insemination (E3.3.2).

3. Discuss how sires are selected for artificial insemination (E3.3.3).

4. Invite an AI technician or show filmstrip to explain the procedures for collecting, storing, and shipping semen and inseminating the cow (E3.3.4-E3.3.6).

5. Provide illustrations of bull and cow reproductive tracts and have students label the parts (E3.3.7).

6. Obtain sample of bull semen and have students examine it under a microscope; help them record their observations (E3.3.7).

7. Have students survey local cattle farmers to determine how their cows are bred and reasons for choosing artificial or natural breeding (E3.3.1).

SELECTED TOOLS AND MATERIALS

Microscope
Bull semen sample
Illustrations of reproductive tracts
Instructor-prepared written test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Artificial Breeding of Dairy Cattle. Nasco.

SELECTED REFERENCES

Dairy Farm Management, pp. 57-68, 119-127. Quinn.

DUTY AREA

3. RAISING DAIRY CATTLE

TASK/COMPETENCY

3.4 Identify practices to improve fertility in the dairy herd

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

3.4

PERFORMANCE OBJECTIVE

P3.4 Given information on successful breeding programs, identify practices to improve fertility in the dairy herd by preparing an oral report which includes the effects of poor reproductive performance, the relationship between feeding and reproductive health, and methods used by dairy farmers to increase the reproductive efficiency of a herd. Report must be rated acceptable according to instructor-prepared checklist based on guidelines provided in class.

SELECTED ENABLING OBJECTIVES

E3.4.1 Explain how the reproductive performance of a herd affects its milk production.

E3.4.2 State the length of standard lactation time of most cows.

E3.4.3 Identify the most desirable calving interval for a herd.

E3.4.4 Identify conditions which reduce a herd's breeding efficiency.

E3.4.5 Describe balanced feed rations for cows at breeding time, during pregnancy, and during lactation.

E3.4.6 Identify vitamins and minerals necessary for herd health and results of these deficiencies.

E3.4.7 Explain the use of breeding records in increasing reproductive efficiency.

E3.4.8 Explain how reproductive diseases can be controlled.

CRITERION-REFERENCED MEASURE

C3.4 Instructor-prepared checklist to evaluate oral report, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Construct a bulletin board display illustrating the relationship between reproductive efficiency and milk production in a dairy herd and the effects this relationship has on the profits of a dairy operation (E3.4.1, E3.4.2).

2. Ask a local dairy farmer to supply necessary information so students can detemine the average calving intervals and the percent of calf crop in that herd (E3.4.3).

3. Discuss conditions which may lower breeding efficiency in a herd such as poor bull performance, various nutritional deficiencies, reproductive diseases, and poor heat detection practices (E3.4.4, E3.4.6, E3.4.8).

4. Have students determine feed rations for cows at various times during the breeding and production cycles (E3.4.5).

5. Show how breeding records can help the dairy farmer maximize the breeding efficiency of a herd (E3.4.7).

6. Review the advantages of artificial insemination in the control of reproductive diseases (E3.4.8).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Sample breeding records
Instructor-prepared checklist to evaluate oral reports

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 141-148. Quinn.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.5 Develop a plan for raising replacement heifers

COURSE

Agricultural Production IV, V

3.5

PERFORMANCE OBJECTIVE

P3.5 Given information about herd management, develop a plan for raising replacement heifers to maintain or increase herd size and quality. Plan must be developed by completing an instructor-prepared worksheet with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E3.5.1 State the percentage range of the dairy herd which must be replaced each year.

E3.5.2 State advantages of raising herd replacements rather than purchasing new animals.

E3.5.3 List five genetic traits which have a high heritability factor.

E3.5.4 Explain how sires are evaluated and how they can be used to improve the milking herd.

E3.5.5 Explain the cow index.

E3.5.6 List recommended breeding weights for heifers of selected breeds.

E3.5.7 Explain the relationship between the farmer's milk base and the heifer's freshening date.

E3.5.8 Explain procedures for caring for newborn calves.

E3.5.9 Describe feed requirements for calves from birth to weaning, from weaning to one year, and for heifers one to two years of age.

E3.5.10 Explain procedure for introducing heifers into the milking herd.

CRITERION-REFERENCED MEASURE

C3.5 Instructor-prepared worksheet, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Invite a local dairy farmer who raises herd replacements to discuss the reasons for the practice, the number of heifers needed to maintain the herd, and the genetic qualities considered to be the most economically valuable (E3.5.1-E3.5.3).

2. Construct a bulletin board display on how dairy cows and bulls are evaluated for breeding purposes; include the predicted difference and repeatability factors for sires and the cow index for dams (E3.5.4, E3.5.5).

3. Discuss breeding of heifers, reviewing facts presented earlier (Task 3.2) on heat detection, gestation periods, and heifer breeding times. Relate breeding and freshening times to a high milk base (E3.5.5-E3.5.7).

4. Review care of newborn calves presented during study of beef cattle in Task 2.8 (E3.5.8).

5. Have groups of students make charts of feed requirements for heifers during different periods to maintain the recommended weight gain (E3.5.9).

6. Show filmstrip and discuss practices observed (E3.5.8, E3.5.9).

7. Discuss the handling of heifers as they are integrated into the milking herd (E3.5.10).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Chart construction materials
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Raising Dairy Calves. Nasco.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 637-643. Gillespie.

DUTY AREA

3. RAISING DAIRY CATTLE

TASK/COMPETENCY

3.6 Describe procedures for removing extra teats from heifers

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

3.6

PERFORMANCE OBJECTIVE

P3.6 Given information on dairy herd management, describe the procedure for removing extra teats from heifers by completing instructor-prepared test items with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.6.1 Cite reasons for removal of extra teats from heifers.

E3.6.2 Determine proper age to remove extra teats from calves.

E3.6.3 Identify equipment needed for procedure.

E3.6.4 List safety precautions to be followed to prevent injury or infection.

CRITERION-REFERENCED MEASURE

C3.6 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss reasons for removing extra teats from dairy calves (E3.6.1).
2. Arrange opportunity for students to observe procedure at a local dairy farm. Have students pay particular attention to safety precautions designed to prevent injury and infection (E3.6.3, E3.6.4).
3. Have students identify the proper age for removing extra teats from calves and discuss why a veterinarian should perform the procedure on older animals (E3.6.2).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test items

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 642-643. Gillespie.

DUTY AREA

3. RAISING DAIRY CATTLE

TASK/COMPETENCY

3.7 Describe recommended management of dry cows

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

3.7

PERFORMANCE OBJECTIVE

P3.7 Given information on managing the dairy herd, describe recommended management of dry cows by completing written test items with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.7.1 Determine when cows should be dried up.

E3.7.2 Explain why accurate breeding records are important in planning the dry period.

E3.7.3 State the length of time a cow should be dry.

E3.7.4 Explain how the cow is conditioned for the dry period to control her weight.

E3.7.5 List three ways to dry off the cow and identify the recommended method in most cases.

E3.7.6 Identify facility, feed, and exercise requirements for dry cows.

E3.7.7 Identify potential health problems in dry cows and explain how to control them.

E3.7.8 Identify procedures to follow in preparation for calving.

CRITERION-REFERENCED MEASURE

C3.7 Instructor-prepared written test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Distribute sample breeding records and have students project calving dates and dry periods (E3.7.1-E3.7.3).
2. Discuss feeding requirements for cows both right before and during the dry period and explain the importance of not allowing the cow to become too fat or too thin (E3.7.4, E3.7.7).
3. Describe methods to dry up the cow and have students identify which method is used in most cases and which may be used for highly productive cows (E3.7.5).
4. Explain why and how dry cows are separated from the milking herd (E3.7.6).
5. Have students list potential health problems in dry cows, their symptoms, and prevention or control methods (E3.7.7).
6. Review preparations for calving and signs of impending labor studied in Task 2.8 (E3.7.8).

SELECTED TOOLS AND MATERIALS

Sample breeding records
Instructor-prepared written test items

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 635-636. Gillespie.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.8 Explain procedures to control mastitis in dairy cows

COURSE

Agricultural Production IV, V

3.8

PERFORMANCE OBJECTIVE

P3.8 Given information on maintaining dairy herd health, explain procedures to control mastitis in dairy cows with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E3.8.1 Define mastitis and identify the two common forms of the disease.

E3.8.2 State five economic effects of mastitis in the dairy herd.

E3.8.3 Identify the bacteria that cause mastitis and explain how they are transmitted.

E3.8.4 Identify poor management practices that can contribute to the spread of mastitis.

E3.8.5 Describe how cows may be tested for both clinical and subclinical mastitis and identify the observable symptoms of the disease.

E3.8.6 Explain measures which can help prevent mastitis.

E3.8.7 Describe procedures for treating matitis.

E3.8.8 State the advantages of treating dry cows for mastitis over lactating cows.

E3.8.9 Explain how dry cows are treated for mastitis.

CRITERION-REFERENCED MEASURE

C3.8 Instructor-prepared written test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the definition and causes of mastitis and why its control is important to the dairy operation (E3.8.1-E3.8.3).

2. Allow students to observe stained slides of mastitic milk through a microscope and identify the bacteria present. Discuss how the bacteria are transmitted and environmental factors which may contribute to their spread (E3.8.3, E3.8.4).

3. Describe the symptoms to look for when mastitis is suspected and the tests which confirm its diagnosis (E3.8.5).

4. Arrange for students to survey local dairy farmers on procedures used to prevent and treat mastitis in both lactating and dry cows (E3.8.6, E3.8.7, E3.8.9).

5. Discuss why and how the dairy farmer would treat dry cows for mastitis (E3.8.8, E3.8.9).

6. Invite a veterinarian to discuss the prevention and treatment of mastitis (E3.8.4-E3.8.9).

SELECTED TOOLS AND MATERIALS

Stained slides of mastitic milk
Microscope
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 423-432. Quinn.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

13.9 Outline procedure for trimming hooves of dairy cattle

COURSE

Agricultural Production IV, V

3.9

PERFORMANCE OBJECTIVE

P3.9 Given information on dairy herd management, outline procedure for trimming the hooves of dairy cattle by completing instructor-prepared test items with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.9.1 State reasons why dairy cows and bulls need proper foot care.

E3.9.2 Identify equipment needed to trim hooves.

E3.9.3 List precautions to follow during hoof-trimming procedure and explain how cow is restrained.

E3.9.4 Identify conditions to check for when trimming hooves and method of treatment for each condition.

E3.9.5 Trim front hooves of cow.

CRITERION-REFERENCED MEASURE

C3.9 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Relate foot care to milk production and breeding capabilities (E3.9.1).
2. Display equipment used for hoof trimming and explain use of each item (E3.9.2).
3. Discuss conditions to look for when examining animals' legs and feet and how to recognize and treat those such as hoof rot (E3.9.4).
4. Arrange opportunity for students to observe a demonstration of hoof trimming, paying particular attention to restraint procedures and safety precautions. If possible, have students practice hoof trimming (E3.9.3, E4.9.5).

SELECTED TOOLS AND MATERIALS

Hoof trimmer
Nipper
Hoof knife
Hoof pick
Chisels
Hammer
Wire Brush
Instructor-prepared test items

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 202-205. Quinn.
Modern Livestock & Poultry Produciton, 2nd ed., p. 643. Gillespie.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.10 Outline procedure for clipping cows

COURSE

Agricultural Production IV, V

3.10

PERFORMANCE OBJECTIVE

P3.10 Given a drawing of a cow, outline the procedure for clipping by marking the areas which should be clipped and numbering the sequence of steps to be followed. Both areas to be clipped and sequence of procedure must be indicated with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.10.1 Identify reasons for clipping dairy cows.

E3.10.2 Explain what a sediment test is and methods of performing the test.

E3.10.3 Identify safety precautions associated with clipping of cows.

E3.10.4 Identify equipment needed for clipping procedure.

E3.10.5 List additional practices to keep milk free of sediment.

E3.10.6 Demonstrate procedure for clipping cows.

CRITERION-REFERENCED MEASURE

C3.10 Drawing of cow marked with 100% accuracy to indicate:

a. Areas of cow to be clipped
b. Sequence in which marked areas should be clipped

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the importance of sediment-free milk production (E3.10.1).
2. Arrange a field trip to a milk plant so students can observe sediment tests being performed and graded (E3.10.2).
3. Invite an extension agent or other resource person to discuss Virginia standards for sediment tests (E3.10.2).
4. Display clippers and discuss precautions to take when using them (E3.10.3, E3.10.4).
5. Arrange opportunity for students to visit a dairy farm to observe cows being clipped; if possible, have students practice the procedure (E3.10.6).
6. Have students identify and list on the blackboard additional practices to keep milk free of sediment (E3.10.5).

SELECTED TOOLS AND MATERIALS

Clippers
Illustration of cow

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Clipping Cows in Milk." Dairy Guidelines, Series 475. VPI & SU.
Dairy Farms Management, pp. 313-320. Quinn.
Modern Livestock & Poultry Production, 2nd ed., pp. 650-651. Gillespie.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.11 List practices which result in milk that meets quality standards

COURSE

Agricultural Production IV, V

3.11

PERFORMANCE OBJECTIVE

P3.11 Given information on milk quality standards, list 10 practices which result in milk that meets quality standards. At least one listed item must apply to each of the following areas: (a) barns and milk houses, (b) cleanliness of cows, (c) health of cows, (d) milking equipment, (e) bacteria control, (f) sediment control, and (g) off-flavor prevention.

SELECTED ENABLING OBJECTIVES

E3.11.1 Explain the composition of milk.

E3.11.2 Define pasteurization and explain its importance.

E3.11.3 Identify eight tests performed on milk.

E3.11.4 Identify and explain the grades of milk.

E3.11.5 Describe dairy farm inspection procedures.

E3.11.6 Identify standards related to barns and milk houses.

E3.11.7 List procedures for cleaning cows before milking.

E3.11.8 Explain requirements regarding cows with mastitis or other diseases.

E3.11.9 List standards related to milking equipment.

E3.11.10 Identify requirements related to milking personnel.

E3.11.11 Explain practices designed to control bacteria and sediment in milk.

E3.11.12 Identify off-flavors in milk, their causes, and how to prevent them.

CRITERION-REFERENCED MEASURE

C3.11 List of 10 practices to meet milk quality standards, related to:

a. barns, milkhouses
b. cleanliness of cows
c. health of cows
d. milking equipment
e. bacteria control
f. sediment control
g. off-flavor prevention

SELECTED INSTRUCTIONAL ACTIVITIES

1. Construct a bulletin board display on the elements found in milk and the characteristics of good milk (E3.11.1).
2. Arrange a tour of a milk plant and have each student report on one test performed or one aspect of the operation (E3.11.2, E3.11.4).
3. Have students make a chart of the grades and classes of milk (E3.11.3).
4. Distribute copies of the Virginia dairy farm inspection sheets and discuss the various components and requirements listed (A copy of the regulations may be obtained from the Virginia Department of Agriculture, Dairy and Foods Division.) (E3.11.5-E3.11.7, E3.11.9, E3.11.10).
5. Review information previously presented on mastitis in Task 3.8 and other cattle diseases in Tasks 1.7 and 1.9 (E3.11.8).
6. Have students examine stained slides of milk containing bacteria and report their observations (E3.11.11).
7. Have students prepare samples of milk with unnatural flavors according to FFA Dairy Foods Contest directions and practice identifying the flavors; discuss how these flavors can be avoided (E3.11.12).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Chart construction materials
Dairy farm inspection sheets
FFA Dairy Foods Contest directions for preparing milk samples (represented in text referenced below)
Ingredients for milk samples

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 291-301, 322-333. Quinn.

----------Application----------

DUTY AREA

3. RAISING BEEF CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.12 Explain operation of milking equipment

COURSE

Agricultural Production IV, V

3.12

PERFORMANCE OBJECTIVE

P3.12 Given illustrations or diagrams of milking equipment, explain operation of the equipment by labeling each component and identifying its function with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.12.1 Identify the types of milking machines.

E3.12.2 Identify the parts of a pipeline milker and a suspension milker.

E3.12.3 Explain the function of each component of a pipeline milker.

E3.12.4 Describe the operation of the milker claw.

E3.12.5 Define pulsation ratio and pulsation rate.

E3.12.6 Identify factors which influence the milking rate.

E3.12.7 List two maintenance practices recommended for each of the following: vacuum pumps, vacuum lines, and milker units.

E3.12.8 Describe cleaning procedures for various components of the milking machine.

CRITERION-REFERENCED MEASURE

C3.12 Illustrations or diagrams of milking equipment labeled with name and function of each component, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Arrange a trip to a milking operation and have each student report on an assigned component of the equipment, its function, and how it operates and relates to the other parts. Have students insert their thumbs in teat cups of the milker claw and count the pulsations (E3.12.1-E3.12.5).
2. Discuss factors that determine milking speed (E3.12.6).
3. Explain general maintenance requirements for milking equipment, emphasizing those activities performed by the operator (E3.12.7).
4. Describe or have students observe cleaning of the milking equipment (E3.12.8).

SELECTED TOOLS AND MATERIALS

Illustrations/diagrams of milking equipment

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 256-268. Quinn.

DUTY AREA

3. RAISING DAIRY CATTLE

TASK/COMPETENCY

3.13 Clean milking machine vacuum lines

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

3.13

PERFORMANCE OBJECTIVE

P3.13 Given access to milking equipment and necessary supplies, clean milking machine vacuum lines according to manufacturer's directions.

SELECTED ENABLING OBJECTIVES

E3.13.1 Explain why cleaning of vacuum lines is important to milk quality standards and the cow's health.

E3.13.2 State the function of the vacuum lines.

E3.13.3 Identify and give reasons for safety precautions related to the cleaning solution.

E3.13.4 Mix cleaning and rinse solution.

CRITERION-REFERENCED MEASURE

C3.13 Milking machine vacuum lines cleaned according to manufacturer's directions

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the functions of the vacuum pump and lines (E3.13.2).
2. Explain why vacuum lines must be cleaned regularly to maintain the proper airflow and prevent injury to the cow (E3.13.1).
3. Have students mix cleaning and rinse solutions, making sure they follow all precautions necessary (E3.13.3, E3.13.4).
4. Have students observe demonstration on cleaning of vacuum lines and assist the milking operator in performing this task (E3.13.1-E3.13.4).

SELECTED TOOLS AND MATERIALS

Cleaning and rinse solution ingredients
Equipment manufacturer's directions for cleaning vacuum lines

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., p. 652. Gillespie.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.14 Describe recommended milking practices

COURSE

Agricultural Production IV, V

3.14

PERFORMANCE OBJECTIVE

P3.14 Given information on milking management, describe recommended milking practices by completing an instructor-prepared written test with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E3.14.1 Describe the function of the cow's udder.

E3.14.2 Explain the causes of milk letdown.

E3.14.3 Identify optimum milking intervals.

E3.14.4 Describe procedures to prepare the cow for milking.

E3.14.5 Explain the importance of using a strip cup.

E3.14.6 Determine when to attach milking machine.

E3.14.7 Determine time needed to milk out the cow.

E3.14.8 Describe procedure for removing milking machine.

E3.14.9 Explain the use of a sanitizer after milking.

E3.14.10 Describe recommended practices related to milking machine operations.

E3.14.11 Identify milking order.

CRITERION-REFERENCED MEASURE

C3.14 Instructor-prepared written test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Use illustrations to explain the functions of the cow's udder and how milk letdown is accomplished (E3.14.1, E3.14.2).
2. Show film to generate discussion of good milking practices (E3.14.3-E3.14.11).
3. Invite a local dairy farmer to explain how regular and efficient milking routines are established and enforced (E3.14.3-E3.14.11).
4. Compare the benefits of milking two times and three times a day (E3.14.4).
5. Relate the milking order of the herd to control of disease (E3.14.11).
6. Discuss the personnel requirements for different types of milking operations (E3.14.10).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Illustration/diagrams of cow's udder (instructor-provided)
Film: Good Milking Procedures. Pace Productions.

SELECTED REFERENCES

Dairy Farm Management, pp. 270-281. Quinn.
Modern Livestock & Poultry Production, 2nd ed., pp. 646-650. Gillespie.

DUTY AREA
3. RAISING DAIRY CATTLE

TASK/COMPETENCY
3.15 Determine nutrient requirements of selected dairy cows

----------Application----------

PROGRAM
AGRICULTURAL PRODUCTION

COURSE
Agricultural Production IV, V

3.15

PERFORMANCE OBJECTIVE

P3.15 Given information on feed requirements and necessary charts, determine nutrient requirements of selected dairy cows by completing the problems on an instructor-prepared worksheet with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E3.15.1 Describe a cow's digestive system.

E3.15.2 State the importance of rumen bacteria.

E3.15.3 Identify feeds which provide protein, carbohydrates, and fat.

E3.15.4 List vitamins and minerals needed by dairy cattle and symptoms of a deficiency of each nutrient.

E3.15.5 Determine requirements for water and clean air.

E3.15.6 Calculate nutrient requirements for weight maintenance.

E3.15.7 Calculate nutrient requirements for weight gain.

E3.15.8 Calculate nutrient requirements for lactating cows.

E3.15.9 Determine sources of required nutrients.

CRITERION-REFERENCED MEASURE

C3.15 Instructor-prepared worksheet, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Provide a model of a cow's digestive tract and have students identify the parts and the function of each (E3.15.1, E3.15.2).

2. Explain why animals need protein, carbohydrates, and fat and how to provide each element in the cow's diet (E3.15.3).

3. Have students match vitamins and minerals to their functions and symptoms of deficiency (E3.15.4).

4. Discuss the cow's requirements concerning clean water and a nonpolluted environment (E3.15.5).

5. Provide necessary charts and tables and have students calculate nutrient requirements for dairy cows of various ages and weights and for different purposes (E3.15.6-E3.15.8).

6. Discuss sources of required nutrients (E3.15.9).

SELECTED TOOLS AND MATERIALS

Nutrient requirements tables
Model of cow's digestive tract
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 517-529. Quinn.
"Minerals and Vitamins for Dairy Cows." Dairy Guidelines, Series 106. VPI & SU.
"Protein Supplements for Dairy Cows." Dairy Guidelines, Series 103. VPI & SU.

----------Application----------

DUTY AREA
3. RAISING DAIRY CATTLE

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
3.16 Develop appropriate rations for dairy cows

COURSE
Agricultural Production IV, V

3.16

PERFORMANCE OBJECTIVE

P3.16 Given nutrient requirements and necessary information and forms, develop appropriate rations for dairy cows by formulating a herd grain mixture to balance the nutrients obtained by forage. Forms must be filled out according to instructor's directions and all mathematical calculations must be 100% accurate.

SELECTED ENABLING OBJECTIVES

E3.16.1 Explain the objectives of a dairy herd feeding program.

E3.16.2 State the two sources of feed for dairy cattle.

E3.16.3 Identify the "thumb rules" of feeding forages and concentrates to dairy cattle.

E3.16.4 Define lead feeding, challenge feeding, and herd grain mix.

E3.16.5 Identify the characteristics of a good grain mixture.

E3.16.6 Identify factors which determine the nutrient content of a grain mixture.

E3.16.7 Demonstrate skills in performing calculations with decimals and percentages.

E3.16.8 Outline steps for formulating a herd grain mixture.

E3.16.9 Explain methods of determining amount of grain mixture to feed dairy cattle.

CRITERION-REFERENCED MEASURE

C3.16 Herd grain mixture forms completed according to instructor's directions, all mathematical calculations 100% accurate

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the objectives of a feeding program and review nutrient requirements of dairy cattle and possible sources of these nutrients (E3.16.1, E3.16.2, E3.16.6).

2. Have students discuss the advantages and disadvantages of using thumb rules for determining feed rations, and explain other methods of calculating feed amounts (E3.16.3, E3.16.9).

3. Have students define terms related to feeding programs (E3.16.4).

4. Have students make a poster containing the characteristics of a good grain mix (E3.16.5).

5. Review necessary mathematical concepts (E3.16.7).

6. Distribute sample completed worksheets for formulating grain mixture and present the steps for this operation (E3.16.8).

7. Give students practice problems to work out on blank worksheets (E3.16.5-E3.16.8).

SELECTED TOOLS AND MATERIALS

Sample completed worksheets for formulating grain mix*
Blank worksheets for formulating grain mix*
Chart construction materials

*See Dairy Farm Management Instructor's Guide.

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 555-577. Quinn.

----------Application----------

DUTY AREA

3. RAISING DAIRY CATTLE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

3.17 Plan housing facilities for dairy cattle

COURSE

Agricultural Production IV, V

3.17

PERFORMANCE OBJECTIVE

P3.17 Given information on housing requirements and necessary supplies, plan housing facilities for dairy cattle that are appropriate to local climate and conditions. Plan must include a labeled diagram of the barn, drawn to scale, and descriptions of type and size of stalls, feeding and waste removal systems, and any other equipment selected. Plan must be rated acceptable according to instructor-prepared checklist based on guidelines provided in class.

SELECTED ENABLING OBJECTIVES

E3.17.1 Identify factors to consider when planning housing for a dairy herd.

E3.17.2 List and describe the types of barns.

E3.17.3 Describe the types of stalls and identify recommended sizes and placements.

E3.17.4 Identify devices used in stall barns to help keep cows clean and comfortable.

E3.17.5 Describe systems for providing feed to dairy cows housed in barns and corrals.

E3.17.6 Describe barn waste-handling systems.

E3.17.7 Identify local conditions which influence dairy housing design.

CRITERION-REFERENCED MEASURE

C3.17 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Present factors which influence designs of housing for dairy cows and have students discuss them in light of local climate, laws and regulations, labor available, land conformation, and the other conditions (E3.17.1, E3.17.7).

2. Obtain floor plans of several types of barns and have students discuss advantages and disadvantages of each (E3.17.2).

3. Arrange a tour of one or more local dairy farms and have students report on various facets of the construction (E3.17.2-E3.17.6).

4. Develop case studies of several different dairy operations of varying sizes and objectives and have students select appropriate dairy herd housing designs for each case (E3.17.1-E3.17.6).

SELECTED TOOLS AND MATERIALS

Barn floor plans (instructor-provided)
Case studies (instructor-developed)
Checklist for evaluating housing plans (instructor-prepared)

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Dairy Farm Management, pp. 459-476. Quinn.

DUTY AREA

4. RAISING SWINE

TASKS/COMPETENCIES

4.1 Select the best production system for swine

4.2 Explain criteria for selecting swine

4.3 Identify and explain the accepted criteria for selecting swine for breeding

4.4 Develop a breeding management calendar

4.5 Explain management of sows and gilts during breeding and gestation

4.6 Develop plan to care for a sow during farrowing and lactation

4.7 Explain factors involved in boar management

4.8 Outline procedures to care for baby pigs from birth to weaning

4.9 Identify recommended procedures for weaning pigs

4.10 Design housing for swine

4.11 Identify and describe systems of swine waste management that meet legal requirements

4.12 Identify nutrient requirements of swine and sources of each nutrient

4.13 Describe the proper weight and quality of hogs going to market

4.14 Develop a plan for marketing feeder pigs

DUTY AREA

4. RAISING SWINE

TASK/COMPETENCY

4.1 Select the best production system for swine

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

4.1

PERFORMANCE OBJECTIVE

P4.1 Given information on production systems and local conditions, determine the best production system for swine in the local area and explain the selection in terms of demand, number of similar operations, grain availability, labor force availability, market access, and other factors determined by the instructor. Selection must be appropriate and explanation must accurately reflect knowledge of local factors.

SELECTED ENABLING OBJECTIVES

E4.1.1 Name the two types of swine production systems.

E4.1.2 Name the three types of commercial swine production and the advantages of each.

E4.1.3 Outline factors which influence selection of a production system for swine.

E4.1.4 Identify types of local swine operations.

E4.1.5 Explain the differences between pasture systems and confinement systems.

CRITERION-REFERENCED MEASURE

C4.1 Selection of swine production system appropriate and reflective of local market conditions

SELECTED INSTRUCTIONAL ACTIVITIES

1. Obtain, or have students obtain, information about local swine operations, such as how many of each type, how and where the pigs are marketed, the size of each operaton, how much labor is available, and whether the grain is grown or purchased (E4.1.1, E4.1.2, E4.1.4, E4.1.5).

2. Explain to students the requirements for capital investment in swine operation and that the type of production system may depend on the amount of inital capital required and how it can be obtained (local economic conditions). Discuss other local conditions which may influence choice of system (E4.1.2, E4.1.3).

3. Discuss the amount of labor and management required for different swine production systems and relate to local conditions (E4.1.3).

4. Discuss pasture and confinement systems and the benefits of each (E4.1.5).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock and Poultry Production, 2nd ed., pp. 263-265. Gillespie.

DUTY AREA

4. RAISING SWINE

Application PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.2 Explain criteria for selecting swine

COURSE

Agricultural Production IV, V

4.2

PERFORMANCE OBJECTIVE

P4.2 Given information on swine breeds, heritability factors, and economically valuable traits, explain criteria for selecting swine by completing an instructor-prepared written test with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E4.2.1 Identify the major swine breeds and characteristics of each.

E4.2.2 Describe the most economically valuable traits in swine used for crossbreeding.

E4.2.3 Identify the parts of a hog.

E4.2.4 Identify wholesale cuts of pork.

E4.2.5 Describe the type of hog carcass most in demand in today's market.

CRITERION-REFERENCED MEASURE

C4.2 Instructor-prepared written test, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students prepare a bulletin board with illustrations of the major swine breeds and their characteristics (E4.2.1).

2. Review the concept of heritability and discuss the traits considered most economically valuable (E4.2.2).

3. Provide a live pig for students to point out and name the parts. Discuss the characteristics of a hog carcass that sell best and have students judge the pig's conformation in terms of those characteristics (E4.2.3, E4.2.5).

4. Arrange a visit to a large supermarket so students can observe the handling of wholesale cuts of pork and identify the retail cuts obtained (E4.2.4).

5. Ask a local swine farmer to explain how animals are selected for that particular type of operation (E4.2.1, E4.2.2, E4.2.5).

6. Show one of the filmstrips referenced below and discuss which breeds of swine are most suited to the local area (E4.2.1, E4.2.2).

7. Have students complete student material in Selecting Swine (E4.2.1-E4.2.5).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Instructor-prepared test
Handouts for Activity 7

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Breeds of Swine. Vocational Agriculture Service.

Filmstrip/Cassette: Swine Breed Identification. Prentice-Hall Media.

SELECTED REFERENCES

Modern Livestock and Poultry Production, 2nd ed., pp. 239-254. Gillespie.
Selecting Swine. Texas A & M University.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.3 Identify and explain the accepted criteria for selecting swine for breeding

COURSE

Agricultural Production IV, V

4.3

PERFORMANCE OBJECTIVE

P4.3 Given information on swine selection, identify and explain the accepted criteria for selecting swine for breeding by completing an instructor-prepared test with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E4.3.1 Name the traits which indicate meatiness in a hog.

E4.3.2 Identify factors to consider when selecting boars for breeding purposes.

E4.3.3 Identify factors to consider when selecting sows or gilts for breeding.

E4.3.4 Identify the most highly heritable traits in swine.

E4.3.5 Describe the benefits of performance testing and explain how it is done.

E4.3.6 Define and explain the concepts of soundness, gain and feed efficiency, underline, and breed character.

E4.3.7 Describe the importance of production records in the selection of breeding stock.

CRITERION-REFERENCED MEASURE

C4.3 Instructor-prepared written test, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Construct a bulletin board display with illustrations and explanations of the characteristics of meaty hogs and why they are in demand for breeding programs (E4.3.1-E4.3.4).

2. Arrange an opportunity for students to observe a swine judging contest for breeding stock and report on an assigned facet of the judging procedure (E4.3.1, E4.3.6).

3. Have students contact a county extension agent about procedures to follow for performance testing and the benefits of the testing (E4.3.5).

4. Present written examples, with illustrations, of various boars, sows, and gilts and have students select ones they would use for breeding and explain their selections according factors presented in class (E4.3.2, E4.3.3).

5. Review task on production records (P1.12) and discuss why they are important when choosing breeding stock (E4.3.7).

6. Show filmstrips and discuss the selection procedures shown (E4.3.1-E4.3.7).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Instructor-prepared test
Case examples and illustrations (instructor-prepared)
Sample production records

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Boar Selection. Prentice Hall Media

Filmstrip/Cassette: Female Selection in Swine. Prentice Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 252-261. Gillespie.
Swine Farmer, Performance Objective 99. V-TECS.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.4 Develop a breeding management calendar

COURSE

Agricultural Production IV, V

4.4

PERFORMANCE OBJECTIVE

P4.4 Given information about the reproductive cycle of swine and necessary supplies, develop a breeding management calendar which schedules four to six farrowings a year, based on recommended prebreeding and breeding management practices presented in class. All dates and calculations must be 100% accurate according to recommended management practices.

SELECTED ENABLING OBJECTIVES

E4.4.1 Explain the benefits of crossbreeding swine.

E4.4.2 Define multiple farrowing and identify its benefits and requirements.

E4.4.3 Describe procedures for selecting and managing gilts and sows prior to breeding.

E4.4.4 Identify requirements for purchasing and managing a boar prior to breeding.

E4.4.5 Determine the number of boars of different ages needed to breed various numbers of females.

E4.4.6 Explain the age/weight requirements of gilts and boars to be bred.

E4.4.7 Determine the proper times for breeding.

E4.4.8 Identify the gestation period for swine and calculate farrowing dates.

E4.4.9 Describe management of sows and gilts during gestation period.

E4.4.10 Compare benefits of artificial insemination to a system of using herd boars.

CRITERION-REFERENCED MEASURE

C4.4 Breeding management calendar, all dates and calculations 100% accurate according to recommended management practices

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss various breeding systems and show filmstrip (E4.4.1, E4.4.2).
2. Invite a swine producer who uses a multiple farrowing system to discuss how breeding stock are selected and managed prior to breeding (E4.4.3, E4.4.4).
3. Discuss the breeding process, including age and weight requirements of both males and females, heat detection methods, number of boars needed, and number of gilts or sows to be bred to obtain projected number of baby pigs, and precautions to follow to ensure herd health (E4.4.5-E4.4.7).
4. Have students calculate farrowing dates of sows bred at various times (E4.4.8).
5. Discuss briefly the management of sows and gilts during the gestation period (E4.4.9).
6. Have students conduct research and report on the use of artificial insemination for breeding swine (E4.4.10).

SELECTED TOOLS AND MATERIALS

Materials for constructing breeding calendar (instructor-provided)

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Swine Breeding Systems. Prentice Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 276-277. Gillespie.

----------Application----------

DUTY AREA
4. RAISING SWINE

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
4.5 Explain management of sows and gilts during breeding and gestation

COURSE
Agricultural Production IV, V

4.5

PERFORMANCE OBJECTIVE

P4.5 Given information on swine breeding, explain management of sows and gilts during breeding and gestation by completing an instructor-prepared test with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E4.5.1 Determine housing requirements for sows and gilts during breeding and pregnancy periods.

E4.5.2 Determine nutrient requirements for pregnant sows.

E4.5.3 Identify procedures to maintain health of sows and gilts during breeding and gestation.

E4.5.4 Define and explain reasons for flushing rations during breeding.

E4.5.5 Determine a balanced ration to limit weight gain of gilts and sows during the gestation period.

CRITERION-REFERENCED MEASURE

C4.5 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show filmstrip to introduce management principles (E4.5.1-E4.5.5).
2. Have students visit a swine breeding operation and report on the facilities for sows and gilts during breeding and gestation (E4.5.1).
3. Ask a veternarian or other resource person to speak to the class about health maintenance of breeding stock (E4.5.3).
4. Have students make a chart of the nutrients required by pregnant sows and recommended methods of supplying these nutrients (E4.5.2, E4.5.5).
5. Explain the procedures and reasons for limiting feed rations and flushing during the breeding period to control the sow's weight gain and produce bigger litters from gilts (E4.5.4).

SELECTED TOOLS AND MATERIALS

Chart construction materials
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Introduction to Swine Management. Vocational Education Productions.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 270-272.
"Managing Sows and Gilts During Breeding and Gestation for Efficient Reproduction." Pork Industry Handbook, PIH - 8. VPI & SU.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.6 Develop plan to care for a sow during farrowing and lactation

COURSE

Agricultural Production IV, V

4.6

PERFORMANCE OBJECTIVE

P4.6 Given information on swine management, develop a plan to care for a sow during farrowing and lactation by completing an instructor-prepared worksheet with 100% accuracy. Plan should include farrowing facilities, farrowing assistance, feeding guidelines, and health maintenance procedures.

SELECTED ENABLING OBJECTIVES

E4.6.1 Explain procedures for moving brood sows to farrowing quarters.

E4.6.2 Identify requirements for farrowing quarters.

E4.6.3 Describe how sows are disinfected, wormed, and treated for external parasites prior to farrowing.

E4.6.4 Explain procedures for assisting sow with a difficult birth and identify conditions which require veterinary assistance.

E4.6.5 Determine feed rations for farrowing and lactating sows.

E4.6.6 Determine farrowing dates for selected sows.

CRITERION-REFERENCED MEASURE

C4.6 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Arrange with a local swine producer to allow students to assist in preparing farrowing quarters and moving brood sows to the farrowing units (E4.6.1-E4.6.2).
2. Have students observe parasite treatments and assist in cleaning sows prior to farrowing (E4.6.3).
3. Show filmstrip and discuss care of the brood sow (E4.6.1-E4.6.5).
4. Ask a resource person to discuss the farrowing process and how to assist with difficult births (E4.6.4).
5. Discuss feed rations at farrowing time and explain the importance of adding bulk to the ration and providing sufficient water for the sow (E4.6.5).
6. Have students calculate amount of rations for lactating sows of varying weights (E4.6.5).
7. Have students determine farrowing dates based on a gestation period of 114 days (E4.6.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: The Brood Sow and Litter. Vocational Education Production.

SELECTED REFERENCES

"Care of the Sow During Farrowing and Lactation." Pork Industry Handbook, PIH-46. VPI & SU.

Modern Livestock & Poultry Production, 2nd ed., pp. 272-273, 277, 288, 292-293. Gillespie.

Swine Farmer, Performance Objective 110. V-TECS.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.7 Explain factors involved in boar management

COURSE

Agricultural Production IV, V

4.7

PERFORMANCE OBJECTIVE

P4.7 Given information on swine breeding, explain factors involved in boar management with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E4.7.1 Determine number of boars needed to breed various numbers of sows.

E4.7.2 Explain how to determine if a boar is adequate for breeding.

E4.7.3 Explain why boars of different ages should be separated.

E4.7.4 Describe precautions to follow to prevent spread of disease in the herd from boars purchased for breeding.

E4.7.5 Determine balanced rations for boars of different ages and weights.

E4.7.6 Compare the costs of keeping boars for breeding to costs of using artificial insemination.

CRITERION-REFERENCED MEASURE

C4.7 Instructor-prepared written test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Invite a local swine producer to discuss boar management practices (E4.7.1-E4.7.5).
2. Have students outline procedures to follow with newly purchased boars, including isolation from the herd and test-mating (E4.7.2-E4.7.4).
3. Discuss limited feeding of boars during breeding season and why it is important to control the boar's weight (E4.7.5).
4. Discuss the use of artificial insemination versus keeping boars for breeding (E4.7.6).
5. Have students calculate number of boars needed for sow herds of different sizes (E4.7.1).

SELECTED TOOLS AND MATERIALS

Instructor-prepared written test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Management of the Boar." Pork Industry Handbook, PIH-1. VPI & SU.
Modern Livestock & Poultry Production, 2nd ed., pp. 272, 276-277. Gillespie.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.8 Outline procedures to care for baby pigs from birth to weaning

COURSE

Agricultural Production IV, V

4.8

PERFORMANCE OBJECTIVE

P4.8 Given guidelines and necessary references, outline, in a written report, procedures to care for baby pigs from birth to weaning. Report must include care of the newborn, litter size equalization, tail docking, anemia and scours prevention, castration of male slaughter pigs, vaccination, worming, and feeding, and must be rated acceptable according to guidelines provided.

SELECTED ENABLING OBJECTIVES

E4.8.1 List the environmental requirements for newborn pigs.

E4.8.2 List steps for clipping needle teeth and navel cord.

E4.8.3 Describe procedure for ear notching baby pigs.

E4.8.4 Explain why and how litters are equalized.

E4.8.5 Outline procedure for tail docking.

E4.8.6 Give iron shots to prevent anemia.

E4.8.7 Describe preventive measures for scours.

E4.8.8 Outline process of castrating baby male pigs.

E4.8.9 Describe vaccination and worming programs.

E4.8.10 Explain the importance of colostrum to the health of newborn pigs.

E4.8.11 Provide creep feed for baby pigs.

CRITERION-REFERENCED MEASURE

C4.8 Written report, rated acceptable according to guidelines provided

SELECTED INSTRUCTIONAL ACTIVITIES

1. Arrange with a local swine producer for students to observe and assist with the care of baby pigs, performing as many tasks as possible (E4.8.1-E4.8.11).
2. Invite a resource person to explain how an operator can assist sows with difficult farrowings and save newborn pigs that would die if unattended (E4.8.1, E4.8.10).
3. Have students identify meanings of various ear notches (E4.8.3).
4. Show and discuss filmstrip as it relates to baby pig management (E4.8.1-E4.8.11).
5. Divide class into groups and have each group develop procedures for one facet of baby pig management (E4.8.1-E4.8.11).
6. Review task 1.10 on livestock diseases, concentrating on treatment of those involving baby pigs (E4.8.6, E4.8.7, E4.8.9).

SELECTED TOOLS AND MATERIALS

Instructor-prepared report guidelines

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: The Brood Sow and Litter. Vocational Education Productions.

SELECTED REFERENCES

"Baby Pig Management--Birth to Weaning." Pork Industry Handbook, PIH-18. VPI & SU.

Modern Livestock & Poultry Production, 2nd ed., pp. 272, 274, 277-279. Gillespie.

Swine Farmer, Performance Objectives 101-105. V-TECS.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.9 Identify recommended procedures for weaning pigs

COURSE

Agricultural Production IV, V

4.9

PERFORMANCE OBJECTIVE

P4.9 Given information on pig management, identify recommended procedures for weaning pigs with 100% accuracy on a written test.

SELECTED ENABLING OBJECTIVES

E4.9.1 Identify advantages of early weaning.

E4.9.2 Identify pig age or weight at which to begin the weaning process.

E4.9.3 Determine length of time needed to wean pigs.

E4.9.4 Identify stress symptoms such as cough or scours in pigs and explain recommended treatment.

E4.9.5 Describe suitable environment for weaned pigs.

E4.9.6 Explain handling of sow during weaning.

CRITERION-REFERENCED MEASURE

C4.9 Instructor-prepared test items, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students question local swine farmers about their management of the weaning procedure (E4.9.1-E4.9.6).
2. Have students develop a pig and sow management plan for the weaning period (E4.9.2-E4.9.6).
3. Discuss the importance of preventing stress in pigs during the weaning process (E4.9.4).
4. Discuss environmental requirements of weaned pigs (E4.9.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test items on weaning pigs

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Swine Farmer, Performance Objective 59. V-TECS.
Swine Production, pp. 32-34. Agri-Farm Publications.
The Stockman's Handbook, 5th ed., p. 728. Ensminger.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.10 Design housing for swine

COURSE

Agricultural Production IV, V

4.10

PERFORMANCE OBJECTIVE

P4.10 Given a description of a local swine operation which includes all the determining factors, design housing for the swine herd described by selecting the correct alternatives from those listed on an instructor-prepared worksheet. Worksheet must be completed with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E4.10.1 Identify factors which influence swine housing site selection and building placements.

E4.10.2 Identify space requirements for swine of various ages and weights.

E4.10.3 Compare portable and permanent farrowing units.

E4.10.4 Compare warm and cold confinement houses.

E4.10.5 Compare solid versus slotted floors.

E4.10.6 Compare types of breeding units and nursery units.

E4.10.7 Compare types of growing facilities.

E4.10.8 Compare types of finishing houses.

E4.10.9 Compare types of fencing.

CRITERION-REFERENCED MEASURE

C4.10 Instructor-prepared worksheet, 90% accuracy.

SELECTED INSTRUCTIONAL ACTIVITIES

1. Arrange a field trip to a local swine operation. Before the trip, assign each student one component of swine housing to observe and report on to the rest of the class (E4.10.3-E4.10.8).

2. Invite an extension agent to discuss optimum and minimum requirements for swine housing, considering environmental factors and space requirements (E4.10.1, E4.10.2).

3. Show filmstrip and have students compare housing shown to that observed on the field trip (E4.10.3-E4.10.8).

4. Discuss facilities for swine in terms of those requiring more capital/less labor and those requiring less capital/more labor (E4.10.3-E4.10.8).

5. Have students discuss local climate, labor and land availability, and other conditions which may determine typles of facilities (E4.10.1, E4.10.2).

6. Discuss the importance of proper fencing (E4.10.9).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet with descriptions of local swine operation and alternative types of facilities for each phase of the operation

SELECTED AUDIOVISUAL MATERIALS

Slides/Cassette: Swine Facilities. Vocational Agriculture Service.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 295-307. Gillespie.
Pork Industry Handbook, PIH-10,-11,-54,-55,-69,-70. VPI & SU.

DUTY AREA

4. RAISING SWINE

Application PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.11 Identify and describe systems of swine waste management that meet legal requirements

COURSE

Agricultural Production IV, V

4.11

PERFORMANCE OBJECTIVE

P4.11 Given information on swine waste disposal, identify and describe systems of swine waste management that meet legal requirements by completing an instructor-prepared test with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E4.11.1 Identify the role played by waste management in the selection of swine housing sites and building placements.

E4.11.2 Identify possible human and swine problems resulting from improper waste disposal.

E4.11.3 Explain the procedures for handling waste in housing using solid, slotted, and partially slotted floors.

E4.11.4 Explain methods of controlling odors from a swine operation.

E4.11.5 Identify uses of hog manure.

E4.11.6 Identify legal guidelines for swine waste management.

CRITERION-REFERENCED MEASURE

C4.11 Instructor-prepared test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Invite an extension agent to speak to the class about legal and environmental concerns of the swine producer related to waste disposal (E4.11.1, E4.11.2, E4.11.4-E4.11.6).

2. Discuss procedures for removing waste from various types of quarters and pens (E4.11.3, E4.11.6).

3. Explain the use of hog manure as a fertilizer and requirements for storage until the manure can be spread (E4.11.5).

4. Have students survey local swine producers and determine system of waste management used by each (E4.11.1-E4.11.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Controlling Odor from Swine Buildings." Pork Industry Handbook. VPI & SU.
"Fertilizer Value of Swine Manure." Pork Industry Handbook. VPI & SU.
"Flushing Systems for Swine Buildings." Pork Industry Handbook. VPI & SU.
"Lagoon Systems for Swine Waste Treatment." Pork Industry Handbook. VPI & SU.
Modern Livestock & Poultry Production, 2nd ed., pp. 295-307. Gillespie.
"Systems of Run off Control." Pork Industry Handbook. VPI & SU.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.12 Identify nutrient requirements of swine and sources of each nutrient

COURSE

Agricultural Production IV, V

4.12

PERFORMANCE OBJECTIVE

P4.12 Given information on swine feeding, identify nutrient requirements of swine and sources of each required nutrient by completing an instructor-prepared written test with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E4.12.1 Identify energy feeds for swine.

E4.12.2 Identify sources of plant and animal proteins and describe the quality of each as a protein provider for swine.

E4.12.3 List vitamins and minerals needed for swine and methods of providing them.

E4.12.4 Compare various roughages as to value for the breeding herd.

E4.12.5 Explain the importance of water as a nutrient.

E4.12.6 Identify additives to feed and how they are regulated.

E4.12.7 Compare nutritional requirements of pigs of different ages, weights, and sexes.

CRITERION-REFERENCED MEASURE

C4.12 Instructor-prepared test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assign one type of nutrient requirement to each student to research and report on. Have the student describe the sources of the nutrient; effects of deficiency; any precautions to follow in using the source; methods of preparing the feed; and amounts needed by different sexes, ages, and weights of animal (E4.12.1-E4.12.7).

2. Have students identify energy feeds and compare each to corn as to feeding value (E4.12.1).

3. Explain the feeding value of soybean oil meal over other protein sources (E4.12.2).

4. Show feed tags from various vitamin and mineral supplements and discuss why swine need these nutrients (E4.12.3).

5. Compare sources of roughage and have students identify the best sources for breeding stock (E4.12.4).

6. Discuss swine requirements for water (E4.12.5).

7. Lead a discussion on various feed additives in light of recent controversies over the effects of these on the consumer's health (E4.12.6).

8. Construct a bulletin board display on nutrient requirements of swine (E4.12.7).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Sample feed tags
Instructor-prepared written test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Energy for Swine." Pork Industry Handbook, PIH-3. VPI & SU.
"Feed Additives for Swine." Pork Industry Handbook, PIH-31. VPI & SU.
"Minerals for Swine." Pork Industry Handbook, PIH-52. VPI & SU.
Modern Livestock & Poultry Production. 2nd ed., pp. 265-276. Gillespie.
"Protein and Amino Acids for Swine." Pork Industry Handbook, PIH-5. VPI & SU.
"Swine Rations." Pork Industry Handbook, PIH-23. VPI & SU.
"Vitamins for Swine." Pork Industry Handbook, PIH-2. VPI & SU.

----------Application----------

DUTY AREA

4. RAISING SWINE

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

4.13 Describe the proper weight and quality of hogs going to market

COURSE

Agricultural Production IV, V

4.13

PERFORMANCE OBJECTIVE

P4.13 Given information on marketing hogs, describe the proper weight and quality of hogs going to market by completing a written test with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E4.13.1 Describe the methods of marketing hogs: direct, terminal, auction, and group marketing.

E4.13.2 Explain methods of pricing market hogs: weight and grade and yield, and identify the method resulting in higher return to the producer of quality meaty hogs.

E4.13.4 Identify and define the use classes of market hogs.

E4.13.5 Explain the USDA grades for live animals and carcasses.

E4.13.6 List the traditional recommended weight at which to sell slaughter hogs and explain why this weight range has been adopted.

E4.13.7 Outline conditions under which slaughter hogs can be sold at a heavier weight.

E4.13.8 Identify the causes of shrinkage.

E4.13.9 Define and give a general explanation of the hog futures market.

CRITERION-REFERENCED MEASURE

C4.13 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students determine the hog marketing method used in the local area (E4.13.1).
2. Discuss the advantages of the grade and yield method of establishing market price (E4.13.2).
3. Invite a hog buyer to speak to the class about market prices and trends, USDA grades, and weight classes of slaughter hogs (E4.13.2-E4.13.7).
4. Have students make a chart which illustrates the USDA grades (E4.13.5).
5. Assist students in calculating the market return on hogs of different weights, using current prices for feed and current local market prices for the hogs (E4.13.6, E4.13.7).
6. Arrange a visit to a packing plant so students can observe the handling and grading of carcasses (E4.13.5).
7. Explain the effects of shrinkage on the market price of hogs (E4.13.8).
8. Set up a simulation in which students trade on the futures market, determining the price they want to lock in, then watching the market reports in the newspaper to see if a profit would have been made (E4.13.9).

SELECTED TOOLS AND MATERIALS

Chart construction materials
Newspaper market reports
Instructor-prepared written test

SELECTED AUDIOVISUAL MATERIALS

Filmstrip/Cassette: Appraising Market Hogs for Carcass Merit. Vocational Agriculture Service.

SELECTED REFERENCES

"Optimum Weight to Market Slaughter Hogs." Pork Industry Handbook, PIH-24. VPI & SU.
Modern Livestock & Poultry Production, 2nd ed., pp. 309-319. Gillespie.

DUTY AREA

4. RAISING SWINE

TASK/COMPETENCY

4.14 Develop a plan for marketing feeder pigs

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

4.14

PERFORMANCE OBJECTIVE

P4.14. Given information on swine marketing, develop a plan for marketing feeder pigs by completing all items on an instructor-prepared worksheet with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E4.14.1 Identify and explain factors which determine market selection.

E4.14.2 Identify optimum weights of feeder pigs for marketing.

E4.14.3 List and describe feeder pig grades.

E4.14.4 Outline procedures for moving feeder pigs to the feedlot.

CRITERION-REFERENCED MEASURE

C4.14 Instructor-prepared worksheet, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Ask a feeder pig producer to discuss factors to consider when choosing a market for feeder pigs (E4.14.1).
2. Discuss the size/age ratio and optimum weights for feeder pigs (E4.14.2).
3. Arrange a visit to a feeder pig operation and have students estimate the market grades (E4.14.3).
4. Discuss the importance of minimizing stress in pigs while they are being moved (E4.14.4).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Feeder Pig Marketing Techniques." Pork Industry Handbook. VPI & SU.
Modern Livestock & Poultry Production, 2nd ed., pp. 315-317. Gillespie.

DUTY AREA

5. RAISING HORSES

TASKS/COMPETENCIES

5.1 Explain criteria for selecting horses

5.2 Determine ages of horses

5.3 Explain measurements used to describe horses

5.4 Groom a horse

5.5 Explain procedure for proper care of horses' feet

5.6 Explain recommended procedures for training horses

5.7 Develop a plan for a quality breeding program

5.8 Describe proper care of a foal from birth to weaning

5.9 Describe procedures for weaning a foal

5.10 Describe a program of care for a stallion

5.11 Explain the nutritional requirements of horses

5.12 Identify common horse diseases and disorders and their treatments

5.13 Identify procedures used to market horses

5.14 Identify horse tack items

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.1 Explain criteria for selecting horses

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.1

PERFORMANCE OBJECTIVE

P5.1 Given information on horse selection, explain criteria for selecting horses by completing an instructor-prepared worksheet with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.1.1 Identify breeds of horses.

E5.1.2 Identify parts of the horse.

E5.1.3 Identify a common defect in the conformation of horses.

E5.1.4 Determine ideal horse conformation.

E5.1.5 Select horses based on pedigree.

E5.1.6 Select horses based on performance testing.

CRITERION-REFERENCED MEASURE

C5.1 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show slides, Horse Breeds and Color Types, to introduce the topic of horse selection (E5.1.1).
2. Have students complete student materials in Selecting Horses (E5.1.2).
3. Discuss which breeds of horses are best suited for various purposes (E5.1.4-E5.1.6).
4. Have students label an illustration of a well bred horse, explaining why the conformation is ideal (E5.1.3, E5.1.4).
5. Have students trace the bloodline of a famous thoroughbred racehorse (E5.1.5).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

Slides: Horse Breeds and Color Types. Vocational Education Productions.

SELECTED REFERENCES

Horses and Horsemanship, 5th ed., pp. 28-44. Ensminger.
Selecting Horses. Texas A & M University.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.2 Determine ages of horses

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.2

PERFORMANCE OBJECTIVE

P5.2 Given access to a selected number of horses from one to five years old, determine with 100% accuracy the age of each horse by examining its teeth.

SELECTED ENABLING OBJECTIVES

E5.2.1 Identify the characteristics of horses' teeth at different ages.

E5.2.2 Identify the normal lifespan of horses of various breeds.

E5.2.3 Explain why the ages of horses need to be determined accurately.

E5.2.4 Identify other signs of age in horses.

E5.2.5 Identify differences in the teeth of stallions and mares.

CRITERION-REFERENCED MEASURE

C5.2 Age of selected number of horses determined by examination of each animal's teeth, 100% accuracy.

SELECTED INSTRUCTIONAL ACTIVITIES

1. Show illustrations of teeth of horses of different ages and discuss their characteristics (E5.2.1).
2. Discuss reasons for accurately determining a horse's age; give an example from thoroughbred racing (E5.2.2, E5.2.3).
3. Invite a horse trainer or breeder to demonstrate how to examine the teeth of horses to determine their ages (E5.2.4, E5.2.5).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

Illustrations of teeth of horses at various ages

SELECTED REFERENCES

Horses and Horse Sense, pp. 266-269. Blakely.

----------Application----------

DUTY AREA

5. RAISING HORSES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.3 Explain measurements used to describe horses

COURSE

Agricultural Production IV, V

5.3

PERFORMANCE OBJECTIVE

P5.3 Given information on sizes and weights, explain the measurements used to describe horses by completing a written quiz with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E5.3.1 Convert hands to inches.

E5.3.2 Convert metric weight units to English units.

E5.3.3 State the size and weight ranges for light horses, draft horses, and ponies.

E5.3.4 Measure a horses' height at the withers.

E5.3.5 Measure a horse's girth.

E5.3.6 Weigh a horse on scales.

CRITERION-REFERENCED MEASURE

C5.3.3 Instructor-prepared written quiz, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Explain the origin of measurement of horses in hands and have students convert given numbers of hands to inches, using 4 inches to 1 hand (E5.13.1).
2. Provide a conversion chart for student reference in converting pounds to kilograms and vice-versa (E5.3.2).
3. Make a bulletin board display of illustrations of different horse classifications, with the sizes and weights marked (E5.3.3).
4. Provide opportunities for students to assist in measuring and weighing horses (E5.3.4-E5.3.6).

SELECTED TOOLS AND MATERIALS

Metric-English units conversion chart
Bulletin board materials
Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Horses and Horsemanship, 5th ed., pp. 51-52. Ensminger.

DUTY AREA

5. RAISING HORSES

Application PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.4 Groom a horse

COURSE

Agricultural Production IV, V

5.4

PERFORMANCE OBJECTIVE

P5.4 Given necessary supplies and equipment, groom a horse according to demonstration or guidelines provided. Acceptable performance must be achieved according to an instructor-prepared checklist.

SELECTED ENABLING OBJECTIVES

E5.4.1 Explain the purposes of grooming a horse.

E5.4.2 Identify and use grooming equipment.

E5.4.3 Demonstrate how to wash a horse.

E5.4.4 Outline pattern for grooming a horse.

E5.4.5 Demonstrate or explain clipping and shearing procedures.

E5.4.6 Explain how to cool down a heated horse.

CRITERION-REFERENCED MEASURE

C5.4 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss the importance of proper grooming of horses as it affects their appearance, health (prevention of skin diseases and parasites), and muscle tone (E5.4.1).
2. Display grooming equipment and demonstrate the use of each item (E5.4.3).
3. Explain why a pattern for grooming should be established and relate this to other safety precautions taken by handlers (E5.4.4).
4. Demonstrate procedures for washing, grooming, clipping, and shearing (E5.4.3, E5.4.5).
5. Discuss reasons for clipping a horse's mane and ears (E5.4.5).
6. Explain why and how heated horses are cooled down (E5.4.6).
7. Arrange opportunities for students to practice and demonstrate their skills in horse grooming (E5.4.1-E5.4.6).

SELECTED TOOLS AND MATERIALS

Stiff-bristled cleaning brush
Smooth-fibered body brush
Currycomb
Grooming cloth
Mane and tail comb
Clippers or scissors
Hoof pick
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Horses and Horsemanship, 5th ed., pp. 398-400. Ensminger.
Modern Livestock and Poultry Production, 2nd ed., pp. 449-451. Gillespie.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.5 Explain procedures for proper care of horses' feet

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.5

PERFORMANCE OBJECTIVE

P5.5 Given information on the care of horses, explain procedure for proper care of horses' feet by completing a written test with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.5.1 Demonstrate how to pick up and examine a horse's foot.

E5.5.2 Identify parts of a horse's pastern and foot.

E5.5.3 Identify common problems associated with horses' feet and potential results of untreated conditions.

E5.5.4 Outline procedures for correcting various foot conditions.

E5.5.5 Demonstrate how to clean a horse's feet.

E5.5.6 Explain or demonstrate procedure for trimming a horse's hooves.

E5.5.7 Identify types of horse shoes.

E5.5.8 Identify horseshoeing equipment.

E5.5.9 Identify good and faulty shoeing.

E5.5.10 Explain reasons for shoeing horses.

CRITERION-REFERENCED MEASURE

C5.5 Instructor-prepared test, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Provide illustrations of a horse's pastern and foot and have students label and explain the function of each part; emphasize the areas sensitive to pain (E5.5.2).

2. Arrange opportunities for students to observe and practice the procedures for examining and cleaning horses' feet; have students identify any faults or problems they observe (E5.5.1, E5.5.2, E5.5.4).

3. Discuss common foot faults in horses and how they can be treated by trimming, shoeing, or other means (E5.5.3).

4. Invite an experienced farrier to discuss and demonstrate trimming and shoeing of horse's hooves. Ask the resource person to explain the types of shoes, equipment items, and purposes of shoeing (E5.5.5-E5.5.10).

SELECTED TOOLS AND MATERIALS

Horseshoes
Horseshoeing equipment
Hoof pick

SELECTED AUDIOVISUAL MATERIALS

Illustrations of horse's pastern and foot

SELECTED REFERENCES

Horses and Horse Sense, pp. 377-391. Blakely.
Modern Livestock & Poultry Production, 2nd ed., pp. 451-453. Gillespie.

----------Application----------

DUTY AREA

5. RAISING HORSES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.6 Explain recommended procedures for training horses

COURSE

Agricultural Production IV, V

5.6

PERFORMANCE OBJECTIVE

P5.6 Given references and/or opportunities for personal observation, explain in an oral report recommended procedures for training an unbroken horse to accept a rider's simple commands. Report must include identification of equipment needed, recommended training intervals, and description of methods used, and must be rated acceptable according to a checklist based on guidelines provided in class.

SELECTED ENABLING OBJECTIVES

E5.6.1 Define the following terms associated with horse training: ground work, head set, driving, mounting, preliminary riding, reining, sacking out, finishing, collection, lightness, and side passes.

E5.6.2 Identify equipment used to train a horse and explain the function of each item.

E5.6.3 Describe the characteristics of horses at different ages.

E5.6.4 Explain how a horse's instincts can be used or overcome with training.

E5.6.5 Outline recommended technique for gentling an unbroken horse.

E5.6.6 Explain techniques used to teach a horse the proper head set.

E5.6.7 State the purposes of driving as a training technique.

E5.6.8 Outline procedures for mounting a horse.

E5.6.9 Explain how the horse can be trained to walk, lope, trot, turn, and back up while mounted.

E5.6.10 Describe procedures used in reining a horse.

E5.6.11 Identify finishing skills and explain how they are taught.

CRITERION-REFERENCED MEASURE

C5.6 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students define vocabulary terms and major concepts used in horse training (E5.6.1).
2. Provide illustrations of equipment used in horse training and have students explain the use of each item (E5.6.2).
3. Invite a horse trainer to talk to the class about the psychology of horses and how modern training methods take advantage of various psychological factors (E5.6.3, E5.6.4).
4. Arrange opportunities for students to observe techniques used by a qualified horse trainer (E5.6.5-E5.6.11).
5. Assign students to interview local horse trainers on various methods used to gentle horses, to teach voice commands, and to train a horse to accept body pressure signals from a rider (E5.6.5-E5.6.11).

SELECTED TOOLS AND MATERIALS

None identified

SELECTED AUDIOVISUAL MATERIALS

Illustrations of training equipment

SELECTED REFERENCES

Horses and Horsemanship, 5th ed., pp. 344-365. Ensminger.
Horses and Horse Sense, pp. 393-492. Blakely.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.7 Develop a plan for a quality breeding program

----------Application----------
PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.7

PERFORMANCE OBJECTIVE

P5.7 Given information on horse reproduction, develop a plan for a quality breeding program by completing an instructor-prepared worksheet with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E5.7.1 Identify highly heritable traits in horses.

E5.7.2 Identify possible genetic defects in horses.

E5.7.3 Explain possible reasons why domesticated horses have a reproduction rate significantly lower than horses in the wild.

E5.7.4 Identify techniques to increase the fertility rate in horses.

E5.7.5 Explain procedures used to condition a mare for breeding.

E5.7.6 Explain techniques to determine if a mare is pregnant.

E5.7.7 Describe procedures for artificial insemination.

E5.7.8 Identify the natural breeding season and foaling times.

E5.7.9 Describe recommended care of the pregnant mare.

E5.7.10 Identify conditions during foaling which require the assistance of a veterinarian.

CRITERION-REFERENCED MEASURE

C5.7 Instructor-prepared worksheet, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students construct a chart comparing the highly heritable traits of horses of various breeds (E5.7.1, E5.7.2).
2. Discuss the possible effects of confinement, concentrated feeding, and lack of exercise on the reproduction rate of horses (E5.7.3).
3. Explain natural breeding and foaling seasons and discuss effects to alter these by regulation of light and early breeding (E5.7.4, E5.7.8).
4. Explain the fertility cycle of the mare and methods used to condition the mare for breeding (E5.7.5).
5. Have students contact an artificial insemination laboratory for information on semen processing and storage (E5.7.7).
6. Provide illustrations of the mare's reproductive tract and show how palpation is accomplished to determine if the mare is pregnant (E5.7.6).
7. Discuss care of the pregnant mare and causes of abortion (E5.7.9).
8. Show illustrations of normal and abnormal presentations of the foal at birth (E5.7.10).

SELECTED TOOLS AND MATERIALS

Chart construction materials
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

Illustrations of horse's reproductive tract and foal fetus

SELECTED REFERENCES

Horses and Horse Sense, pp. 217-234. Blakely.
Modern Livestock and Poultry Production, 2nd ed., pp. 444-448. Gillespie.

----------Application----------

DUTY AREA	PROGRAM
5. RAISING HORSES	AGRICULTURAL PRODUCTION
TASK/COMPETENCY	**COURSE**
5.8 Describe proper care of a foal from birth to weaning	Agricultural Production IV, V

5.8

PERFORMANCE OBJECTIVE

P5.8 Given information on horse management, describe proper care of a foal from birth to weaning by completing a written quiz with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.8.1 Outline procedure to treat the foal's navel cord.

E5.8.2 Explain the value of colostrum and how to ensure that the foal receives sufficient amounts.

E5.8.3 Describe treatments for constipation and diarrhea in newborn foals.

E5.8.4 Outline procedures for taking care of orphan foals.

E5.8.5 Outline a schedule to begin creep feeding.

E5.8.6 Describe methods and reasons for training the very young foal.

CRITERION-REFERENCED MEASURE

C5.8 Instructor-prepared written quiz, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Compare the care required for newborn foals to that required for other newborn livestock on the farm (E5.8.1-E5.8.3).
2. Have students prepare a schedule for feeding an orphan foal (E5.8.4).
3. Discuss the proper rations for creep feeding a foal (E5.8.5).
4. Invite a horse trainer to discuss training techniques for foals and explain reasons for starting the training at 10 to 14 days after birth (E5.8.6).

SELECTED TOOLS AND MATERIALS

Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 448. Gillespie.

----------Application----------

DUTY AREA

5. RAISING HORSES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.9 Describe procedures for weaning a foal

COURSE

Agricultural Production IV, V

5.9

PERFORMANCE OBJECTIVE

P5.9 Given information on horse management, describe procedures for weaning a foal by completing a written quiz with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.9.1 Identify normal weaning time and reasons for early weaning.

E5.9.2 Explain recommended method of separating the foal from the mare.

E5.9.3 State precautions that should be observed when putting foals on pasture.

E5.9.4 Describe procedure for drying up the mare.

E5.9.5 Determine feed ration for newly weaned foals.

CRITERION-REFERENCED MEASURE

C5.9 Instructor-prepared written quiz, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Compare weaning of foals to the procedures and time schedules used for calves and baby pigs (E5.9.1, E5.9.2).
2. Explain precautions that protect foals from injury when allowed to run on pasture (E5.9.3).
3. Discuss procedure for drying up the mare (E5.9.4).
4. Have students use ration tables to determine proper types and amounts of feeds for weaned foals (E5.9.5).

SELECTED TOOLS AND MATERIALS

Ration tables
Instructor-prepared quiz

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 448-449. Gillespie.

----------Application----------

DUTY AREA

5. RAISING HORSES

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.10 Describe a program of care for a stallion

COURSE

Agricultural Production IV, V

5.10

PERFORMANCE OBJECTIVE

P5.10 Given information on raising stallions, describe a program of care for the stallion, with provisions for housing, feeding, exercising, and breeding, by completing an instructor-prepared worksheet with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.10.1 Explain housing requirements for horses.

E5.10.2 Calculate feed rations for stallions.

E5.10.3 Describe provisions for exercise for the stallion.

E5.10.4 Outline procedures for breeding a stallion.

CRITERION-REFERENCED MEASURE

C5.10 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students diagram barns and stalls used for horses (E5.10.1).
2. Provide ration tables and have students determine feed amounts for stallions (E5.10.2).
3. Relate the importance of proper exercise to breeding success of the stallion (E5.10.3).
4. Contact personnel at a breeding farm for information on the care of valuable stallions (E5.10.4).
5. Have students trace the bloodlines of a famous stallion (E5.10.5).

SELECTED TOOLS AND MATERIALS

Ration tables
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Horses and Horsemanship, 5th ed., pp. 168-171. Ensminger.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.11 Explain the nutritional requirements of horses

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production

5.11

PERFORMANCE OBJECTIVE

P5.11 Given information on horse management, explain the nutritional requirements of horses by completing a written test with 90% accuracy.

SELECTED ENABLING OBJECTIVES

E5.11.1 Identify requirements for and sources of energy for horses.

E5.11.2 Identify requirements for and sources of protein for horses.

E5.11.3 Identify requirements for and sources of vitamins and minerals for horses, and results of their deficiency.

E5.11.4 Determine requirements for daily water ration.

E5.11.5 Explain causes of foundering in horses.

E5.11.6 Describe changes in feed rations as a result of aging in horses.

E5.11.7 Describe the horse's digestive processes.

CRITERION-REFERENCED MEASURE

C5.11 Instructor-prepared written test, 90% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Prepare a bulletin board display on the nutrional requirements of horses and the sources of energy, protein, vitamins, and minerals (E5.11.1-E5.11.3).

2. Discuss conditions that can result from a deficiency in various nutritional elements (E5.11.3).

3. Explain requirements for water for horses and the function it serves in the horse's body (E5.11.4).

4. Explain how ration amounts are determined and have students list percentages of body weight used to determine rations for horses of various weights, according to work performed (E5.11.1-E5.11.4).

5. Discuss differences between food requirements of wild and domesticated horses (E5.11.5).

6. Discuss changes in the horse's mouth and teeth as a result of aging, and explain adjustments in feeding (E5.11.6).

7. Provide illustrations of the horses digestive system and have students explain the function of each part (E5.11.7).

SELECTED TOOLS AND MATERIALS

Ration tables
Bulletin board materials
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Illustrations of horse's digestive system

SELECTED REFERENCES

Horses and Horse Sense, pp. 237-255. Blakely.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.12 Identify common horse diseases and disorders and their treatments

---Application---

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.12

PERFORMANCE OBJECTIVE

P5.12 Given information on horse health maintenance, identify common horse diseases and disorders and their treatments by answering questions on a written test with 80% accuracy.

SELECTED ENABLING OBJECTIVES

E5.12.1 Describe general symptoms of illness in a horse.

E5.12.2 Identify diseases and injuries to horses commonly classified as medical emergencies.

E5.12.3 State names, symptoms, and treatments associated with respiratory diseases in horses.

E5.12.4 Identify reproductive problems in horses and methods of prevention.

E5.12.5 Identify common viral and bacterial diseases which affect horses and explain how they are treated.

E5.12.6 Identify common gastrointestional problems in horses.

E5.12.7 Explain treatment of various horse and leg problems.

E5.12.8 Describe control measures for internal parasites.

E5.12.9 Identify common external parasites which infect horses and explain methods of control.

CRITERION-REFERENCED MEASURE

C5.12 Instructor-prepared test, 80% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Invite a veterinarian to discuss symptoms of illness in horses and situations requiring veternary assistance (E5.12.1, E5.12.2).

2. Assign small groups of students to perform research on one type of disease or disorder common to horses; have each group report to the class on the symptoms, cause, treatment, and prevention or control measures (E5.12.3-E5.12.7).

3. Provide illustrations of selected internal and external parasites and discuss how they affect horses (E5.12.8, E5.12.9).

SELECTED TOOLS AND MATERIALS

Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

Illustrations of internal and external parasites

SELECTED REFERENCES

Horses and Horse Sense, pp. 271-328. Blakely.
Modern Livestock and Poultry Production, 2nd ed., pp. 467-475. Gillespie.

DUTY AREA

5. RAISING HORSES

TASK/COMPETENCY

5.13 Identify procedures used to market horses

---Application---

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

5.13

PERFORMANCE OBJECTIVE

P5.13 Given information on selling horses, identify procedures use to market horses with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E5.13.1 Describe how to prepare the horse for selling.

E5.13.2 Identify ways to advertise the horse.

E5.13.3 Identify methods of selling horses.

CRITERION-REFERENCED MEASURE

C5.13 Procedures used to market horses identified, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students complete assignment sheets, "Selling Horses" from Horse Farm Employee (E5.13.1-E5.13.3).
2. Arrange, if possible, a field trip to a horse auction and have students discuss how the auction is run and the prices paid for various horses (E5.13.3).
3 Have students discuss the syndication of racehorses (E5.13.3).
4. Invite a resource person to describe to the class how a horse is prepared prior to selling (E5.13.1).
5. Discuss ways to advertise sale of horses (E5.13.2).

SELECTED TOOLS AND MATERIALS

Handouts for Activity 1

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

"Selling Horses." Horse Farm Employee. Texas A & M University.

DUTY AREA

5. RAISING HORSES

----------Application----------
PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

5.14 Identify horse tack items

COURSE

Agricultural Production IV, V

5.14

PERFORMANCE OBJECTIVE

P5.14 Given a display or illustrations of various pieces of equipment used for riding and showing horses, identify horse tack items by stating the name of each and its use with 80% accuracy.

SELECTED ENABLING OBJECTIVES

E5.14.1 Identify types of saddles and circumstances under which each type is used.

E5.14.2 Identify pressure points on a horse's head used as areas of control.

E5.14.3 Identify selected types of bridles and cavessons and state their uses.

E5.14.4 Identify types of bits and compare their functions.

E5.14.5 Explain the purpose of different types of protective boots.

E5.14.6 Compare various types of girths in terms of use.

E5.14.7 Identify types of stirrups and materials from which they are made.

E5.14.8 Identify types of spurs.

E5.14.9 Explain or demonstrate how to care for leather goods.

CRITERION-REFERENCED MEASURE

C5.14 Oral identification of horse tack and use of each item, 80% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Obtain copies of a tack catalogs; have students look up various items for information on materials used and care instructions (E5.14.9).

2. Have students make a list of all the ways horses are used (recreation, stock work, show, jumping, racing, hauling, etc.) and identify items of tack used for each purpose (E5.14.1, E5.14.3-E5.14.8).

3. Provide an illustration of a horses' head and have students point out the pressure points, then explain how different bridles and bits permit the rider to use these points to control the horse (E5.14.2).

4. Have students list all the tack items used in training a horse (E5.14.3, E5.14.4).

SELECTED TOOLS AND MATERIALS

Display or illustrations of tack items
Tack catalogs

SELECTED AUDIOVISUAL MATERIALS

Illustration of horse's head

SELECTED REFERENCES

Horses and Horse Sense, pp. 355-374. Blakely.

DUTY AREA

6. RAISING SHEEP

TASKS/COMPETENCIES

6.1 Select sheep

6.2 Determine the best lambing system

6.3 Explain ram management practices

6.4 Describe good breeding management practices

6.5 Describe procedures to assist ewes in lambing

6.6 Plan the care of lambs from birth to weaning

6.7 Outline procedures related to sheep health maintenance

6.8 Determine feed requirements for sheep

6.9 Describe procedures for marketing sheep

6.10 Describe procedures associated with wool shearing

6.11 Explain factors which influence selection of a wool market

6.12 Describe housing and equipment required for sheep production

DUTY AREA

6. RAISING SHEEP

TASK/COMPETENCY

6.1 Select sheep

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

6.1

PERFORMANCE OBJECTIVE

P6.1 Given a description of a simulated local farm operation, select sheep for a farm flock by identifying breed and explaining selection in terms of local market conditions, availability of breeding stock, and adaptability to the local area. Selection must be judged acceptable according to an instructor-prepared checklist based on the description given.

SELECTED ENABLING OBJECTIVES

E6.1.1 Name and explain the two basic types of sheep production in the United States.

E6.1.2 Compare the advantages and disadvantages of sheep production as a secondary farm enterprise.

E6.1.3 Identify breeds of sheep raised primarily for wool.

E6.1.4 Identify breeds of sheep raised primarily for slaughter.

E6.1.5 Identify criteria used for breed selection.

E6.1.6 Define western ewes and native ewes.

E6.1.7 Explain how market lambs are judged.

E6.1.8 Identify signs of poor health in sheep.

E6.1.9 Identify factors which influence selection of breeding stock.

CRITERION-REFERENCED MEASURE

C6.1 Instructor-prepared checklist, all items rated acceptable

SELECTED INSTRUCTIONAL ACTIVITIES

1. Present an overview of sheep production in the United States and compare it to Virginia and the local area (E6.1.1).
2. Have students construct a bulletin board display of the most popular breeds of sheep and their characteristics (E6.1.3, E6.1.4).
3. Show filmstrip and discuss which breeds of sheep provide selected types of wool for marketing (E6.1.3).
4. Invite a local sheep producer to talk to the class about the advantages and disadvantages of sheep production and the criteria used for breed selection and breeding stock selection (E6.1.2, E6.1.5, E6.1.9).
5. Compare the advantages of western and native ewes (E6.1.6).
6. Discuss how market lambs are judged and the similarities between sheep and cattle judging (E6.1.7).
7. Have students identify indications of poor health in sheep (E6.1.8).

SELECTED TOOLS AND MATERIALS

Bulletin board materials
Instructor-prepared checklist

SELECTED AUDIOVISUAL MATERIALS

Filmstrip: An Introduction to Sheep Breed Identification. Prentice-Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 323-339. Gillespie.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.2 Determine the best lambing system

COURSE

Agricultural Production IV, V

6.2

PERFORMANCE OBJECTIVE

P6.2 Given information on the four types of lambing systems, determine the best lambing system for a local farm flock by completing an instructor-prepared worksheet with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E6.2.1 Identify requirements for purebred and commercial producers of sheep.

E6.2.2 Explain the advantages and disadvantages of fall, early spring, late spring, and accelerated lambing systems.

E6.2.3 Define hothouse lambs and Easter lambs.

E6.2.4 Explain the risks involved in raising feeder lambs.

CRITERION-REFERENCED MEASURE

C6.2 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss purebred and commercial sheep production in terms of capital and management required for each (E6.2.1).

2. Divide class into four groups and have each group prepare a report on one lambing system. Have them include advantages and disadvantages of the system based on feeding, labor, and market requirements; breeding difficulty; and health maintenance of ewes and lambs (E6.2.2, E6.2.3).

3. Discuss feeder lamb operations in terms of lamb selection and market conditions (E6.2.4).

SELECTED TOOLS AND MATERIALS

Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 341-343. Gillespie.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.3 Explain ram management

COURSE

Agricultural Production IV, V

6.3

PERFORMANCE OBJECTIVE

P6.3 Given information on sheep management, explain ram management procedures, including feeding and breeding requirements, by completing a written quiz with 80% accuracy.

SELECTED ENABLING OBJECTIVES

E6.3.1 Identify criteria for selecting a ram for breeding.

E6.3.2 Explain how to determine a ram's growth rate and why it is an important factor in selection.

E6.3.3 Determine feed rations for a ram and ram lambs.

E6.3.4 Identify management practices related specifically to the breeding season.

CRITERION-REFERENCED MEASURE

C6.3 Instructor-prepared written quiz, 80% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Discuss criteria used to select the best rams for breeding, including superior growth, muscle, soundness, and flesh quality (E6.3.1).
2. Explain those heritable traits passed on to offspring primarily by the ram, such as growth rate and twinning (E6.3.2).
3. Have students use feed ration tables to determine type and amount of feed for rams and ram lambs (E6.3.3).
4. Arrange for students to interview local sheep producers about ram management practices related to breeding, such as the ratio of ewes to lambs, ram fertility tests, marking and shearing of rams prior to breeding, etc. (E6.3.4).

SELECTED TOOLS AND MATERIALS

Feed ration tables
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 336-344, 347. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 252, 267. Blakely and Bade.

DUTY AREA

6. RAISING SHEEP

TASK/COMPETENCY

6.4 Describe good breeding management practices

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

6.4

PERFORMANCE OBJECTIVE

P6.4 Given information on sheep reproduction, describe good breeding management practices by completing a written test with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E6.4.1 Identify traits of ewes which indicate good breeders.

E6.4.2 Identify desirable traits in a ram used for breeding.

E6.4.3 Explain feeding practices which result in an increase in the lamb crop and incidence of twinning.

E6.4.4 Describe shearing procedures for ram and ewes which encourage mating.

E6.4.5 Describe procedures for marking rams during breeding seasons to determine if mating has occurred.

E6.4.6 Describe the reproductive cycle of sheep.

E6.4.7 Identify those breeds of sheep that reach maturity at a young age.

E6.4.8 Complete breeding record forms.

CRITERION-REFERENCED MEASURE

C6.4 Instructor-prepared written test, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review sheep selection in terms of those traits which make rams and ewes good breeding stock (E6.4.1, E6.4.2).
2. Discuss flushing of ewes and other practices which encourage mating (E6.4.3, E6.4.4).
3. Explain the reproductive cycle of sheep and have students list those breeds that reach maturity at an early age; discuss why this is a desirable trait (E6.4.6, E6.4.7).
4. Review information on lambing systems and relate it to the reproductive cycle (E6.4.6).
5. Explain system for marking the ram with colored paste to determine if mating has occurred and why this is a good management practice (E6.4.5).
6. Provide breeding recording forms and have students enter information required for a simulated sheep operation such as that described in Task 6.1 (E6.4.8).

SELECTED TOOLS AND MATERIALS

Sample breeding record forms
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 346-347. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 250-252, 266. Blakely and Bade.

DUTY AREA

6. RAISING SHEEP

TASK/COMPETENCY

6.5 Describe procedures to assist ewes in lambing

---------- Application ----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

6.5

PERFORMANCE OBJECTIVE

P6.5 Given report guidelines and necessary references, describe procedures to assist ewes in lambing by preparing a written report, explaining care of the ewe during pregnancy, signs of approaching birth, and problems which may arise during lambing and how these problems may be overcome. Report must be rated acceptable according to guidelines provided.

SELECTED ENABLING OBJECTIVES

E6.5.1 Determine nutritional requirements of pregnant ewes.

E6.5.2 Describe exercise requirements of pregnant ewes.

E6.5.3 Explain shelter requirements of pregnant ewes.

E6.5.4 List signs of approaching birth.

E6.5.5 Compare lambing and calving processes.

E6.5.6 Define crutching, tagging, and facing and explain the importance of these procedures.

E6.5.7 Design a lambing pen.

E6.5.8 Identify potential problems with lambing and methods of assistance.

CRITERION-REFERENCED MEASURE

C6.5 Written report, prepared according to guidelines, to include:
a. Care of ewe during pregnacy
b. Signs of approaching birth
c. Possible problems in lambing
d. Methods of assistance

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students determine a daily feed ration for a 150-pound ewe, including vitamin and mineral supplements and grain supplement during the latter 30 to 45 days of gestation (E6.5.1).
2. Explain the importance of exercise for pregnant ewes and how this requirement may be enforced by feeding away from the barn (E6.5.2).
3. Discuss any necessary shelter needed for sheep on the pasture (E6.5.3).
4. Show filmstrip on sheep reproduction and have students list the signs of approaching parturition (E6.5.4).
5. Arrange a trip to a local sheep operation so students can observe (or assist in) shearing of pregnant ewes prior to lambing (E6.5.6).
6. Explain the importance and requirements of lambing pens (E6.5.7).
7. Review the calving process and have students compare its similarities to lambing in terms of fetus presentation and potential problems during the birth process (E6.5.5, E6.5.8).

SELECTED TOOLS AND MATERIALS

Report guidelines

SELECTED AUDIOVISUAL MATERIALS

Film: Sheep Reproduction and Management Programs. Prentice-Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., p. 347. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 252-257. Blakely and Bade.
Sheep and Wool Science, p. 193. Ensminger.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.6 Plan the care of lambs from birth to weaning

COURSE

Agricultural Production IV, V

6.6

PERFORMANCE OBJECTIVE

P6.6 Given information on lamb management, plan the care of lambs from birth to weaning by completing an instructor-prepared worksheet with 100% accuracy.

SELECTED ENABLING OBJECTIVES

E6.6.1 Explain treatment of navel cord and eyes of newborn lambs.

E6.6.2 Explain the importance of prompt nursing of newborn lambs.

E6.6.3 Describe reasons and procedures for keeping newborn lambs warm and dry.

E6.6.4 Outline the procedure for docking.

E6.6.5 Explain the procedure for castrating ram lambs.

E6.6.6 Identify methods of and reasons for ear marking.

E6.6.7 Identify health maintenance procedures for lambs.

E6.6.8 Explain reasons why some ewes will not accept their lambs.

E6.6.9 Outline procedures used to encourage ewes to accept their lambs.

E6.6.10 Design a feeding program for an orphan lamb.

E6.6.11 Identify lamb weaning ages.

CRITERION-REFERENCED MEASURE

C6.6 Instructor-prepared worksheet, 100% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Invite a local sheep producer to discuss the care of newborn lambs and methods used to encourage ewes to accept their lambs (E6.6.1-E6.6.3, E6.6.8, E6.6.9).
2. Arrange an opportunity for students to observe docking and castration procedures (E6.6.4, E6.6.5).
3. Explain ear-marking systems (E6.6.6).
4. Discuss why lambs are vaccinated and sheared (E6.6.7).
5. Display equipment used in docking, castrating, and marking lambs and have students identify each and state its function (E6.6.4-E6.6.6).
6. Discuss methods of encouraging a ewe to adopt an orphan lamb (E6.6.9).
7. Have students identify replacements for ewe's milk for orphan lambs (E6.6.10).
8. Explain differences in weaning age of orphan lambs and nursing lambs (E6.6.11).
9. Show filmstrip and have students answer the study questions on lamb management (E6.6.1-E6.6.11).

SELECTED TOOLS AND MATERIALS

Docking tools
Castration tools
Marking tools
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

Film: Sheep Reproduction and Management. Prentice-Hall Media.

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 345-349. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 257-258. Blakely and Bade.
Sheep and Wool Science, pp. 195-196, 278. Ensminger.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.7 Outline procedures related to sheep health maintenance

COURSE

Agricultural Production IV, V

6.7

PERFORMANCE OBJECTIVE

P6.7 Given information on sheep management, outline procedures related to sheep health maintenance by answering instructor-prepared test questions with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E6.7.1 List signs of poor health in sheep.

E6.7.2 Identify practices designed to prevent injury or spread of disease in a sheep flock.

E6.7.3 Identify common diseases affecting sheep, their symptoms, and methods of prevention.

E6.7.4 Outline procedures for proper foot care of sheep.

E6.7.5 List and describe common digestive problems in sheep.

E6.7.6 Identify internal and external parasites and outline procedures for ridding sheep of these pests.

E6.7.7 Explain precautions to observe when spraying and drenching sheep.

CRITERION-REFERENCED MEASURE

C6.7 Instructor-prepared test, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review signs of poor health in sheep as identified in Task 6.1 on sheep selection (E6.7.1).

2. Explain practices to prevent injury or spread of disease in sheep, emphasizing that because individual sheep do not respond well to treatment, the focus of health maintenance must be on prevention of problems (E6.7.2).

3. Arrange for students to interview a veterinarian about diseases which commonly affect sheep and their symptoms, treatments, and preventive measures (E6.7.3, E6.7.5).

4. Discuss the importance of proper foot care to prevent foot rot and lameness in sheep, and if possible, arrange a demonstration of hoof trimming (E6.7.4).

5. Have students construct an illustrated chart on parasites which infect sheep, listing their symptoms and treatments (E6.7.6).

6. Contact an extension agent for the latest recommendations concerning insecticides (E6.7.7).

7. Have selected students assist a local sheep producer in drenching the animals, observing all precautions necessary (E6.7.7).

SELECTED TOOLS AND MATERIALS

Chart construction materials
Hoof trimming tools
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 335, 380-390. Gillespie.

----------Application----------

DUTY AREA
6. RAISING SHEEP

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
6.8 Determine feed requirements for sheep

COURSE
Agricultural Production IV, V

6.8

PERFORMANCE OBJECTIVE

P6.8 Given information on sheep nutrition, determine with 85% accuracy feed requirements for sheep, including those for pregnant and lactating ewes, rams, lambs from birth to weaning, lambs from weaning to market, orphan lambs, and replacement ewes.

SELECTED ENABLING OBJECTIVES

E6.8.1 Outline procedures for gestation feeding.

E6.8.2 Identify nutrients which should be provided in addition to pasture for gestating ewes.

E6.8.3 Explain the advantages of self feeding for pregnant ewes and how weight is controlled when using this method.

E6.8.4 Outline nutritional requirements of lactating ewes.

E6.8.5 Determine feed requirements of rams during breeding season.

E6.8.6 Design a feeding program for lambs from birth to weaning.

E6.8.7 Describe procedures for feeding lambs from weaning to market.

E6.8.8 Identify feeding requirements specifically associated with orphan lambs.

E6.8.9 Outline procedures for feeding replacement ewes.

CRITERION-REFERENCED MEASURE

C6.8 Feed requirements determined, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Have students gather information from an extension agent or other resource about the amount and type of pasturage available in the local area (E6.8.2).
2. Assign one type of sheep to each student or small groups of students and have them report on the feeding requirements of that type (E6.8.1-E6.8.9).
3. Compare the advantages of self feeding and hand feeding of lambs and pregnant ewes (E6.8.3, E6.8.6).
4. Provide tables listing daily nutrient requirements and have students list sources of protein, energy, vitamins, and minerals required for sheep (E6.8.1-E6.8.9).

SELECTED TOOLS AND MATERIALS

Daily nutrient requirement tables

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 343-346. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 253-256. Blakely and Bade.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.9 Describe procedures for marketing sheep

COURSE

Agricultural Production IV, V

6.9

PERFORMANCE OBJECTIVE

P6.9 Given information on types of markets, classes and grades of sheep, and seasonal price averages, describe the procedures for marketing sheep by completing a written test with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E6.9.1 Identify methods of marketing sheep.

E6.9.2 Explain the age classes of market sheep.

E6.9.3 Identify and explain the use classes of market sheep.

E6.9.4 Define the sex classes of market sheep.

E6.9.5 Explain the weight classes of market sheep.

E6.9.6 Describe the characteristics of prime, choice, good, utility, and cull grades of quality and how both live sheep and carcasses are graded.

E6.9.7 Define cutability and its relationship to yield grades.

E6.9.8 Describe the characteristics of carcass yield grades 1 through 5.

E6.9.9 Explain methods of reducing shrinkage as sheep are moved to market.

E6.9.10 Describe the slaughter process of sheep.

E6.9.11 Explain how sheep carcasses are determined to be either lamb or mutton.

E6.9.12 Identify the most profitable seasonal markets.

CRITERION-REFERENCED MEASURE

C6.9 Instructor-prepared written test, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Compare methods of marketing sheep with those for cattle and hogs, and discuss the decline of terminal markets and rise of direct markets in recent years (E6.9.1).

2. Divide class into small groups and have each group construct a chart illustrating one of the classes or grades of market sheep (E6.9.2-E6.9.8).

3. Arrange a field trip to an meat packing plant or large supermarket where students can observe the handling of wholesale and retail cuts of lamb and mutton (E6.9.6-E6.9.8).

4. Arrange (if possible) a trip to a local sheep market where sheep are weighed and judged for market classification (E6.9.1-E6.9.8).

5. Have students survey local sheep producers about the types of markets available, the most profitable season for marketing, and recent average prices paid (E6.9.1, E6.9.12).

6. Discuss the recommended methods of handling sheep to reduce shrinkage on the way to market (E6.9.9).

7. Describe procedure for slaughtering sheep and how carcasses are classified as mutton or lamb (E6.9.10, E6.9.11).

SELECTED TOOLS AND MATERIALS

Chart construction material
Instructor-prepared test

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 292-295. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 269-271. Blakely and Bade.

----------Application----------

DUTY AREA

6. RAISING SHEEP

PROGRAM

AGRICULTURAL PRODUCTION

TASK/COMPETENCY

6.10 Describe procedures associated with wool shearing

COURSE

Agricultural Production IV, V

6.10

PERFORMANCE OBJECTIVE

P6.10 Given information on sheep management, describe procedures associated with wool shearing, including selecting the proper times for shearing, shearing with power clippers, rolling the fleece, and preparing the wool for grading. Description must be rated acceptable according to guidelines provided in class.

SELECTED ENABLING OBJECTIVES

E6.10.1 Determine the proper time to shear wool according to various lambing systems.

E6.10.2 State requirements and precautions observed in shearing.

E6.10.3 Identify equipment used in shearing.

E6.10.4 Explain or demonstrate proper rolling and tying of fleece.

E6.10.5 Describe how fleece is cleaned prior to grading.

E6.10.6 Define grease wool, scour, yolk, lanolin, carbonization and carding.

E6.10.7 Explain requirements for storing wool.

CRITERION-REFERENCED MEASURE

C6.10 Description of wool-shearing procedures, rated acceptable according to guidelines provided to include:

a. Proper time for shearing
b. Procedure for shearing wool
c. Procedure for rolling fleece
d. Preparation of fleece for grading

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review lambing systems (Task 6.1) and how to determine when to shear sheep in the local area (E6.10.1).
2. Arrange a demonstration of shearing and ask the shearer to explain to the class the requirements and precautions observed concerning shearing order, handling of sheep, and removal of the wool in one unbroken fleece (E6.10.2, E6.10.3).
3. Arrange opportunity for students to observe or assist in the preparation of fleece for grading (E6.10.4, E6.10.5).
4. Have students identify terms associated with cleaning the wool and preparing it for grading (E6.10.5, E6.10.6).
5. Explain storage requirements prior to marketing (E6.10.7).

SELECTED TOOLS AND MATERIALS

Instructor-prepared description guidelines

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 350-351. Gillespie.
The Science of Animal Husbandry, 3rd ed., pp. 273-274. Blakely and Bade.
Sheep and Wool Science, pp. 629-630. Ensminger.

DUTY AREA

6. RAISING SHEEP

TASK/COMPETENCY

6.11 Explain factors which influence selection of a wool market

----------Application----------

PROGRAM

AGRICULTURAL PRODUCTION

COURSE

Agricultural Production IV, V

6.11

PERFORMANCE OBJECTIVE

P6.11 Given information of the marketing of wool, explain factors (including types of markets, wool prices, and wool grades) which influence the selection of a wool market by completing an instructor-prepared worksheet with 85% accuracy.

SELECTED ENABLING OBJECTIVES

E6.11.1 Identify and describe methods by which wool is marketed, including local buyers, wool pools, wool cooperatives, warehouse operations, and direct sale to mills.

E6.11.2 Explain seasonal variations in wool prices.

E6.11.3 Explain incentive prices and how they are paid under the National Wool Act.

E6.11.4 Identify factors which determine the value of wool fleece.

E6.11.5 Describe the American system and the numerical count (USDA) system of grading.

E6.11.6 Explain the characteristics of apparel wood and carpet wool.

E6.11.7 Explain the worsted and woolen classes of apparel wool.

CRITERION-REFERENCED MEASURE

C6.11 Instructor-prepared worksheet, 85% accuracy

SELECTED INSTRUCTIONAL ACTIVITIES

1. Assist students in surveying local sheep producers to determine the types of markets and average seasonal prices paid (E6.11.1, E6.11.2).
2. Explain the application process necessary to obtain incentive prices through the National Wool Act (E6.11.3).
3. Invite a wool buyer or obtain information from a mill to explain factors which affect the value of wool fleece: presence of impurities; shrinkage during cleaning; and the length, density, and diameter of the wool fiber (E6.11.4).
4. Discuss the American system of grading wool fiber (E6.11.5).
5. Obtain samples of wool fiber and wool top and copies of USDA standards for each; have students compare the samples (E6.11.5).
6. Have students list the characteristics of apparel, worsted, woolen, and carpet classes of wool fiber (E6.11.6, E6.11.7).

SELECTED TOOLS AND MATERIALS

Samples of wool and wool top
Copies of USDA standards for wool and wool top
Instructor-prepared worksheet

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 395-400. Gillespie.

----------Application----------

DUTY AREA
6. RAISING SHEEP

PROGRAM
AGRICULTURAL PRODUCTION

TASK/COMPETENCY
6.12 Describe housing and equipment required for sheep production

COURSE
Agricultural Production IV, V

6.12

PERFORMANCE OBJECTIVE
P6.12 Given information on local conditions and a description of a simulated sheep enterprise, describe in an oral report the housing and equipment required for sheep production in the local area. Oral report must include requirements for barns, sheep lots and pens, watering and feeding systems, fencing, and equipment used for both sheep and wool production, and report must be presented according to guidelines provided.

SELECTED ENABLING OBJECTIVES
E6.12.1 Identify factors which influence selection of housing and equipment.

E6.12.2 Explain environmental (air, light, and heat) requirements for sheep barns.

E6.12.3 List space requirements per sheep for barns and sheep lots.

E6.12.4 Describe systems for watering and feeding sheep.

E6.12.5 Explain requirements for lambing pens.

E6.12.6 Outline requirements for fences.

E6.12.7 Identify equipment needed for sheep management.

E6.12.8 List equipment needed for wool shearing operations.

CRITERION-REFERENCED MEASURE
C6.12 Oral report presented according to guidelines provided, to include:

a. Requirements for barns, sheep lots and pens, watering and feeding systems, and fencing
b. Equipment used for sheep and wool production

SELECTED INSTRUCTIONAL ACTIVITIES

1. Review information on local conditions, including climate and type and sizes of local sheep operations (E6.12.1).
2. Have students design sheep barns to suit the local conditions and which contain the recommended provisions for light, air, heat, and space (E6.12.2, E6.12.3).
3. Arrange a field trip to a local sheep enterprise and have students report on the methods used for watering and feeding (E6.12.4).
4. Review requirements for lambing pens studied in Task 6.5 (E6.12.5).
5. Discuss fencing and explain how cattle fences are adapted for use with sheep (E6.12.6).
6. Provide illustration or examples of equipment used for sheep management, e.g. chutes, cradles, blocking stand, crates, docking/castration equipment, syringes, identification equipment, scales, and recording forms, and have students identify by name and function (E6.12.7).
7. Display equipment needed for wool shearing (E6.12.8).

SELECTED TOOLS AND MATERIALS

Illustrations or examples of the following:

Sorting, loading chutes
Portable shelters and shades
Tilting squeeze
Pregnancy testing cradle
Weighing crate
Shipping crate
Wool bag holder
Power shears
Hand shears
Docking/castration equipment
Scales
Record forms or books
Identification equipment
Paper twine
Instructor-prepared guidelines for oral report

SELECTED AUDIOVISUAL MATERIALS

None identified

SELECTED REFERENCES

Modern Livestock & Poultry Production, 2nd ed., pp. 351-352. Gillespie.
Sheep Handbook Housing and Equipment. Midwest Plan Service.

SECTION 2

PROGRAMS AND COURSES

The Agricultural Production program and courses described in this section are based in part on the task analyses presented in Section I. The program and courses have been approved by the Virginia Department of Education.

Because no instruction in livestock production is offered in Agricultural Production III, this section contains only course descriptions for Agricultural Production IV and V, and the suggested teaching sequence includes only those task/competencies related to livestock production. This section is organized as follows:

Program description--Agricultural Production
Course description--Agricultural Production IV
Course description--Agricultural Production V
Suggested teaching sequence--Livestock production tasks for inclusion in both courses
Content outline--Livestock production tasks for inclusion in both courses.

Program designers or instructors in localities offering Agricultural Production V may wish to adapt many of the performance objectives into the psychomotor domain, since much of the instruction in the third year may take place on an individualized basis, in an actual farm setting where hands-on skills are more readily demonstrated.

PROGRAM AND COURSE DESCRIPTIONS

PROGRAM TITLE: AGRICULTURAL PRODUCTION

DESCRIPTION: The curriculum for the three agricultural production courses is based on the assumption that students have completed the courses of Agricultural Science and Mechanics I and II. The major emphasis is directed toward helping students become more proficient in animal, plant, and soil sciences and in farm business management and agricultural mechanics. Leadership training is provided, and supervised occupational experience programs are incorporated whenever possible.

CIP CODE: 01.0301

SUGGESTED GRADE LEVEL: 10, 11, 12

APPROVED COURSES	VA COURSE CODE	DOT CODE AND TITLE	
Agricultural Production IV	8012	The following DOT titles apply to Agricultural Production IV and V:	
Agricultural Production V	8014	410.161-018	Livestock Rancher
		410.664-010	Livestock Farmworker
		410.674-014	Cowpuncher
		410.674-018	Livestock-Yard Attendant
		410.674-022	Stable Attendant
		410.684-010	Dairy Farmworker
		410.685-010	Machine Milker
		410.687-022	Sheep Herder
		410.364-010	Lamber

AGRICULTURAL PRODUCTION IV (8012)

COURSE DESCRIPTION: Agricultural Production IV is a one-year, single- or double-period, occupational course offered at the eleventh- or twelfth-grade level. The course includes instruction in agricultural mechanics, with emphasis placed on the application of mechanical skills to farm power and machinery, soil and water management, and farm structures. Appropriate instruction is provided in livestock production, farm management, supervised farming programs, and leadership training.

PREREQUISITE: Agricultural Production III

SUGGESTED GRADE LEVEL: 11 or 12

AGRICULTURAL PRODUCTION V (8014)

COURSE DESCRIPTION: Agricultural Production V is a one-year, advanced occupational preparation course offered at the twelfth-grade level for single or double periods. Much of the instruction may be provided through individualized instruction. Emphasis is placed on establishment in farming, farm management, and occupational experience. Students receive instruction in adjusting, operating, and maintaining farm machinery and equipment and in planning and constructing farm buildings and facilities. Continued emphasis is placed on leadership training.

PREREQUISITE: Agricultural Production IV

SUGGESTED GRADE LEVEL: 12

TASK/COMPETENCY SEQUENCE

Two-Year Program Option: In localities where Agricultural Production is offered as a two-year program, instruction associated with livestock production is designed to be incorporated into the second year. Therefore, the following task/competency sequence applies to Agricultural Production IV (8012).

Three-Year Program Option: In localities where Agricultural Production is offered as a three-year program, instruction associated with livestock production is designed to be incorporated into both the second and third years. Tasks 1.1 through 1.13 listed in the following task/competency sequence apply to Agricultural Production IV and the remaining tasks apply either to that course or to Agricultural Production V (8014).

SUGGESTED LIVESTOCK PRODUCTION TASK/COMPETENCY SEQUENCE

1.1 List and explain methods of identifying livestock
1.2 Explain methods of castrating livestock
1.3 List and explain methods of restraining livestock
1.5 Compare types of common livestock bedding materials
1.4 Plan procedure to load livestock on trucks
1.6 List disinfectants used to treat injured livestock
1.7 Develop a parasite control program
1.8 Vaccinate livestock
1.9 Match names of common livestock diseases to the proper treatments
1.10 Explain methods of disposing of dead animals
1.11 Outline procedures for fitting and showing livestock
1.12 Complete production record forms
1.13 Complete farm income and expense record forms
2.1 Select beef cattle
2.2 List and explain criteria used to cull undesirable cows
2.6 Develop a plan for a controlled seasonal breeding program
2.4 List and explain signs of heat in cattle
2.5 Identify signs of pregnancy in cows
2.7 Describe procedures for assisting in delivery of calves
2.8 Explain procedures for caring for calves at calving time
2.9 Determine the age for and list precautions to use when weaning calves
2.10 List and explain factors that determine creep feeding
2.3 Explain methods used to dehorn cattle
2.11 Develop a feeding program for a beef animal
2.12 Describe procedures for managing the herd bull
2.13 Calculate cost of a beef operation
3.1 Select an ideal dairy animal
3.2 Identify and explain factors associated with successful dairy breeding
3.3 Describe the process by which cows are artificially inseminated
3.4 Identify practices to improve fertility in the dairy herd
3.5 Develop a plan for raising replacement heifers
3.6 Describe procedures for removing extra teats from heifers
3.7 Describe recommended management of dry cows
3.8 Explain procedures to control mastitis in dairy cows
3.9 Outline procedure for trimming hooves of dairy cattle
3.10 Outline procedure for clipping cows
3.11 List practices which result in milk that meets quality standards
3.12 Explain operation of milking equipment
3.13 Clean milking machine vacuum lines
3.14 Describe recommended milking practices
3.15 Determine nutrient requirements of selected dairy cows
3.16 Develop appropriate rations for dairy cows
3.17 Plan housing facilities for dairy cows
4.1 Determine the best production system for swine
4.2 Explain criteria for selecting swine
4.3 Identify and explain the accepted criteria for selecting swine for breeding
4.4 Develop a breeding management calendar
4.5 Explain management of sows and gilts during breeding and gestation
4.6 Develop plan to care for a sow during farrowing and lactation
4.7 Explain factors involved in boar management
4.8 Outine procedures to care for baby pigs from birth to weaning
4.9 Identify recommended procedures for weaning pigs

4.10 Design housing for swine
4.11 Identify and describe systems of swine waste management that meet legal requirements
4.12 Identify nutrient requirements of swine and sources of each nutrient
4.13 Describe the proper weight and quality of pigs going to market
4.14 Develop a plan for marketing feeder pigs
5.1 Explain criteria for selecting horses
5.2 Determine ages of horses
5.3 Explain measurements used to describe horses
5.4 Groom a horse
5.5 Explain procedure for proper care of horses' feet
5.6 Explain recommended procedures for training horses
5.7 Develop a plan for a quality breeding program
5.8 Describe proper care of a foal from birth to weaning
5.9 Describe procedures for weaning a foal
5.10 Describe a program of care for a stallion
5.11 Explain the nutrient requirements of horses
5.12 Identify common horse diseases and disorders and their treatments
5.13 Identify procedures used to market horses
5.14 Identify horse tack items
6.1 Select sheep
6.2 Determine the best lambing system
6.3 Explain ram management practices
6.4 Describe good breeding management practices
6.5 Describe procedures to assist ewes in lambing
6.6 Plan the care of lambs from birth to weaning
6.7 Outline procedures related to sheep health maintenance
6.8 Determine feed requirements for sheep
6.12 Describe housing and equipment required for sheep production
6.9 Describe procedures associated with wool shearing
6.11 Explain factors which influence selection of a wool market

CONTENT OUTLINE
LIVESTOCK PRODUCTION

I. PERFORMING GENERAL LIVESTOCK DUTIES

A.	Livestock identification	P1.1
1.	Reasons for marking	E1.1.1
2.	Brands	E1.1.2
3.	Tattoos	E1.1.3
4.	Ear notches and tags	E1.1.4
5.	Methods used on purebred animals	E1.1.5
B.	Livestock castration	P1.2
1.	Equipment	E1.2.1
2.	Methods	E1.2.4
3.	Reasons for castrating livestock	E1.2.2
4.	Proper age of animal	E1.2.3
C.	Livestock restraint	P1.3
1.	Occasions when livestock should be restrained	E1.3.2
2.	Equipment	E1.3.1
3.	Safety rules for horse handlers	E1.3.2
4.	Chutes and headgates for cattle	E1.3.4
D.	Livestock bedding	P1.5
1.	Common bedding materials	E1.5.1
2.	Purposes of bedding	E1.5.2
3.	Bedding used in stalls, pens, sheds, and trucks	E1.5.3
4.	Spreading procedure	E1.5.4
E.	Livestock loading procedure	P1.4
1.	Precautions	E1.4.1
2.	Calculations of number safely loaded	E1.4.2
3.	Bedding for trucks	E1.4.3
F.	Livestock injury treatments (disinfectants)	P1.6
1.	Characteristics of injured animals	E1.6.1
2.	Common injuries	E1.6.3
3.	Restraint of injured livestock	E1.6.2

I. G.	Livestock parasite control	P1.7
	1. External parasites	E1.7.1
	2. Control of external parasites	E1.7.2
	3. Legal constraints on chemical control	E1.7.3
	4. Internal parasites	E1.7.4
	5. Symptoms	E1.7.5
	6. Methods of parasite control	E1.7.6
	7. Importance of control	E1.7.7
H.	Livestock vaccination	P1.8
	1. Vaccines and diseases prevented by each	E1.8.1
	2. Vaccination schedule	E1.8.4
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*Competency common to both beef and dairy cow operations

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*Competency common to both beed and dairy cow operations

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		5. Grading systems	E6.11.5
		6. Wool fiber characteristics	E6.11.6, E6.11.7

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Bacterial, Viral, Nutritional, Fungal, and Miscellaneous Diseases. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Beef Production. Gowrie, Iowa: Agri-Farm Publications, 1979.

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Castrating and Docking Procedures. College Station, Texas: Vocational Instructional Services, Texas A&M University.

A Catalog of Tasks, Performance Objectives, Performance Guides, Tools, and Equipment for Cattle Rancher. Alabama: Vocational-Technical Education Consortium of States, 1982.

A Catalog of Tasks, Performance Objectives, Performance Guides, Tools, and Equipment for Swine Farmer. Kentucky: Vocational-Technical Education Consortium of States, 1982.

Dairy Guidelines. Blacksburg: Extension Division, Virginia Polytechnic Institute and State University.

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Feed Nutrients and Classes of Feed. College Station, Texas: Vocational Instructional Services, Texas A& M University.

Forms of Animal Identification. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Gillespie, James R. Modern Livestock & Poultry Production, 2nd ed. Albany, New York: Delmar Publishers Inc., 1983.

Handling and Restraint of Livestock. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Horse Farm Employee. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Pork Industry Handbook. Blacksburg: Cooperative Extension Service, Extension Division, Virginia Polytechnic Institute and State University, 1979.

Quinn, Thomas. Dairy Farm Management. Albany, New York: Delmar Publishers Inc., 1980.

Selecting Horses. College Station, Texas: Vocational Instructional Services. Texas A&M University.

Selecting Swine. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Selection of Beef Cattle. College Station, Texas: Vocational Instructional Services, Texas A&M University.

Sheep Handbook Housing and Equipment. Ames, Iowa: Midwest Plan Service, Iowa State University.

Swine Production. Gowrie, Iowa: Agri-Farm Publications, 1979.

Virginia Beef Cow-Calf Handbook. Blacksburg: Cooperative Extension Service, Extension Division, Virginia Polytechnic Institute and State University, 1981.

APPENDIX

ADDITIONAL INFORMATION AND RESOURCES

I. Additional References

This section includes a listing of reference materials, in addition to those listed in the bibliography, which have been identified by teachers as useful in developing competency-based instruction in Livestock Production.

A. Textbooks

Animal Health. Ensminger, M. E. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1980.

Animal Science. Ensminger, M. E. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1977.

Approved Practices in Beef Cattle Production. Juergenson, E. M. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1974.

Approved Practices in Feeds and Feeding. Patton, W. R.; Cassard, D. W.; and Juergenson, E. M. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1971.

Approved Practices in Raising & Handling Horses. Ulmer D. E., and Juergenson, E. M. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1974.

Approved Practices in Swine Production. Baker, J. K., and Juergenson, E. M. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1971.

Artificial Insemination of Farm Animals. Perry, E. J. Rutgers University Press, New Brunswick, New Jersey, 1973.

Beef Cattle Science. Ensminger, M. E. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1976.

Beef Production in the South. Fowler, S. H. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1979.

Dairy Cattle Science. Ensminger, M. E. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1980.

Feed Formulations. Perry, T. W. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1975.

Feeds and Nutrition. Ensminger, M. E., and Olentine, C. G. Ensminger Publishing Co., Clovis, California, 1978.

Handbook of Livestock Equipment. Juergenson, E. M. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1979.

A. Textbooks (Continued)

Livestock--Judging, Selection and Evaluation. Hunsley, R. E.; Beeson, W. M.; and Nordby, J. E. The Interstate Printers & Publishers, Inc., Danville, Illinois, 1970.

Merck Veterinary Manual. Siegmund, O. H. Merck & Co. Inc., Rahway, New Jersey, 1979.

Working in Animal Science. Christenson, P., and Nelson, E. A. Gregg Division, McGraw-Hill Book Company, New York, 1978.

B. Student Materials

The following student materials, published by Vocational Instructional Services, Texas A&M University, College Station, Texas, are recommended in addition to those listed in the bibliography.

Animal Reproduction
Artificial Insemination
Breeding Systems
Breeds of Dairy Cattle
Breeds of Horses
Breeds of Sheep
Breeds of Swine
Carcass Evaluation
Carcass Judging and Grading
Care of Livestock at Parturition
Circulatory and Respiratory Systems
Digestive Systems
Genetics
Injection Procedures
Live Animal Judging and Grading
Methods of Breeding Livestock
Performance and Production Testing
Planning Livestock Facilities
Pregnancy Diagnosis (Palpation)
Rations
Skeletal and Muscular Systems
Supervised Experience Program Record Book for Production Agriculture
V.A. I Animal Science (Technical Information--includes 99 transparency masters)
V.A. II Animal Science (Technical Information--includes 116 transparency masters)

II. Audiovisual Materials

This section contains listings of audiovisual materials identified by teachers as being useful in implementing competency-based instruction in Livestock Production. For ease in ordering, AVs selected for tasks analyzed in Section I are included, as well as additional aids.

A. Instructional Technology Service, Virginia Department of Education, P.O. Box 6Q, Richmond, VA 23216

16mm Films

Agricultural Chemicals--Resistance of Insects to Insecticides
Agricultural Chemicals--Selecting Nonchemical Methods of Insect Control
Agriculture Machine Maintenance
Back the Attack on Brucellosis
Cattle and the Corn Belt--The Midwest
Cattleman--A Rancher's Story
Dairy Farm Today
Dairy Products--From Moo to You
Farm Babies and Their Mothers
Farrowing Pigs
Hog Sanitation with Concrete
Meat, Milk, and Money with Livestock on Concrete
Our Changing Way of Life--The Dairy Farmer
Pork--The Meal with the Squeal
Pride--The Saddle Horse
Sheep--How They Live
Three More Little Pigs Go to Market
Venezualan Equine Encephomyelities--A National Emergency
Your Lamb Goes to the Fair

B. Vocational Agriculture Service, 434 Mumford Hall, Urbana, IL 61801

Filmstrips/Cassettes

Aberdeen Angus Judging Classes
Appraising Market Hogs for Carcass Merit
Breeds of Dairy Cattle
Breeds of Swine
Dehorning Cattle
Holstein Judging Classes
Identification of Kinds of Meat
Identification of Pork Cuts
New and Exotic Breeds of Cattle
Pests of Cattle
Selecting Beef Breeding Animals
Swine and Pork Carcass Grades
USDA Grades of Beef

Slides/Cassettes

Swine Facilities

II. C. Vocational Education Productions, California Polytechnic State University, San Luis Obispo, CA 93407

Filmstrip/Cassettes

Artificial Insemination of Beef and Dairy Cattle
Beef Cattle Body Types
Beginner's Guide to Buying a Horse
The Brood Sow and Litter
Embryo Transfer of Beef and Dairy Cattle
Identification of Beef Cuts
Introduction to Swine Management
Swine Health Care

Slides

Beginner's Guide to Buying a Horse
Horse Breeds and Color Type

D. Nasco Agricultural Sciences, 1524 Princeton Avenue, Modesto, CA 95352

Filmstrips/Cassettes

Artificial Breeding of Dairy Cattle
Breeds of Beef Cattle
Judging Dairy Cattle
Raising Dairy Calves
Vaccinating Methods

Slides

Diseases in Feeder Cattle
Judging Livestock

E. Prentice-Hall Media, 150 White Plains Road, Tarrytown, NY 10591

16mm Films

An Introduction to Sheep Breed Identification
Nutrition and Health in Sheep
Production Systems for Sheep
Sheep Reproduction and Management

Filmstrips/Cassettes

Beef Breed Selection
British Breeds
Boar Selection
Continental Breeds
Dairy Breeding Systems
Dairy Breed Selection
Female Selection in Swine
An Introduction to Swine Breed Identification
Selecting Dairy Females
Selecting Beef Females
Selecting Beef Sires and Crossbreeds
Swine Breeding Systems

II. F. Hobar Publications, Colonial Films, Inc., Atlanta, GA

Filmstrip/Cassette

Black Leg

Slides/Cassettes

Artificial Insemination in Beef Cattle
Baby Pig Management and Skills
Beef Facilities
Ruminant Stomachs

8mm Film

Good Milking Procedures

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